Blank Registration's locker unlocker

FACTORY Code Edition :)

factory code brute force sheet

0%:	0 L R U L D	_ _ UDLD
4%:	0 R L D R U	_ _ DURU
7%:	0 D U L D R	_ _ DUDR
10%:	0 U D R U L	_ _ UDUL
13%:	0 L R R D	_ _
15%:	0 U D U R	_ _
17%:	0 L L R L	_ _
19%:	0 D U U R	_ _
21%:	0 R L L U	_ _
24%:	0 L R L U	_ _
26%:	0 U D D L	_ _
28%:	0 D D U D	_ _
30%:	0 R R L R	_ _
32%:	0 R L R D	_ _
35%:	0 U U D U	_ _
37%:	0 D U D L	_ _
39%:	0 R R U R	_ _
41%:	0 D D R D	_ _
43%:	0 L L D L	_ _
44%:	0 U U L U	_ _
46%:	0 L U R D U	_ UDDU
47%:	0 R L D L R	_ RLLR
49%:	0 R D L U D	_ DUUD
50%:	0 L R U R L	_ LRRL
51%:	0 L U L L	_
52%:	0 D D L D	_
53%:	0 U U R U	_
54%:	0 R R D R	_
55%:	0 R U D L D U	_ RLDD DDUU
56%:	0 U L R D L R	_ RDLL LLRR
57%:	0 R D U L D R	_ RDLD RDDR
59%:	0 L D U R U D	_ LRUU UUDD
60%:	0 D L R U L D	_ DLUL DLLD
61%:	0 L U D R U L	_ LURU LUUL
63%:	0 U R L D R U	_ URDR URRU
64%:	0 D R L U R L	_ LURR RRLL
65%:	0 L D R D R	_ UDDR
66%:	0 U U L D R	_ UUDR
67%:	0 L U D U R	_ LUUR
68%:	0 U L D L R	_ ULLR

Input Length(s) covered:

4 directions (with no more than 2 consecutive)

Time to cover 50%

~1m 45s

Time to cover 100%

~6m

69%:	0 R U L U D	_ RUUD
70%:	0 L L D R U	_ LLRU
71%:	0 R R U L D	_ RRLD
71%:	0 R D U D L	_ RDDL
72%:	0 D L R L U	_ DLLU
73%:	0 D R U R L	_ DRRL
74%:	0 D D R U L	_ DDUL
75%:	0 U R L R D	_ URRD
76%:	0 D L R D	_
76%:	0 L U U D	_
77%:	0 R R U U	_
77%:	0 U U L L	_
78%:	0 D L R R	_
78%:	0 D D R L	_
79%:	0 U U R D	_
79%:	0 D L L R	_
79%:	0 D L U U	_
80%:	0 D D R R	_
80%:	0 R U U L	_
81%:	0 L D D R	_
81%:	0 L L R D	_
82%:	0 U R L U	_
82%:	0 D D L U	_
82%:	0 R R D D	_

Email me your factory code so I can assess frequency – david a7 frop d07 net

Blank Registration's locker unlocker

FACTORY Code Edition :)

factory code brute force sheet

```
83%: 0 D D U R
83%: 0 R D U U
84%: 0 R R L U
84%: 0 L R R U
85%: 0 U R L L
85%: 0 L L D U
86%: 0 L L D D
86%: 0 U U L R
86%: 0 L D U U
87%: 0 U U R L
87%: 0 R D D U
88%: 0 U D U D
88%: 0 U L R R
89%: 0 L L U D
89%: 0 D U U L
89%: 0 U R R L
90%: 0 U D R R
90%: 0 U U D L
91%: 0 U R D D
91%: 0 D R L L
92%: 0 D U L L
92%: 0 R R D L
93%: 0 U U R R
93%: 0 D U D U
93%: 0 D R R U
94%: 0 U L L D
94%: 0 L D D U
95%: 0 R D U R
95%: 0 R U D D
96%: 0 R L L D
96%: 0 L U D D
96%: 0 L L U U
97%: 0 R R D U
97%: 0 D D L R
98%: 0 L L U R
98%: 0 L R L R
99%: 0 L U D L
99%: 0 D D L L
100%: 0 R R U D
```

Instructions: enter each sequence, and pull the shackle after red moves. The lock may open. Zero means reset. The percentage of the input space exhausted is shown. If you feel the paddle binding or incomplete moves, repeat the entire sequence from the last reset. Don't go too fast or you will make a mistake and miss an opening and say my sheet is wrong. You can always mark your place and come back later. The blue letters on the right show a shorter sequence to each red-letter from reset if one exists.

Pdf available:

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Blank Registration's locker unlocker

Gate detection worksheets for top and right wheel

Top Gate State Table

L	R	U
(0,1)	(1,-1)	(1,0)
(1,1)	(2,-1)	(2,0)
(2,1)	(3,-1)	(3,0)
(3,1)	(4,-1)	(4,0)
(4,1)	(0,-1)	(0,0)

Sequence to reach top gate

Transform table for right wheel

input	effect
U	Advance to next (n,1)
R	Advance to next (n,0)
D	Advance to next (n,-1)

Right Wheel Position after seq.

Instructions:

- Reset the lock (all wheels now in the (0,0) position.)
- apply heavy tension to the shackle and enter a series of up moves feeling the shackle for a slight give. I call this Dragging.
  - Each up move drags across the states in one row, moving you to the next up column.
  - When you know what row its in, start doing the prevarikation LRU stepping technique
    - Enter the move (left right or up)
    - move the knob down and hold it
    - apply light tension to the shackle
    - release the knob
      - If the knob sticks or moves slowly you can assume the top is in a gate because the fence is binding a lower wheel.
- Verify the gate position by reaching it in a few ways and record the sequence used in the box.
- Calculate the position of the right wheel after the sequence to reach the top gate using the transform rules. Record it in the box

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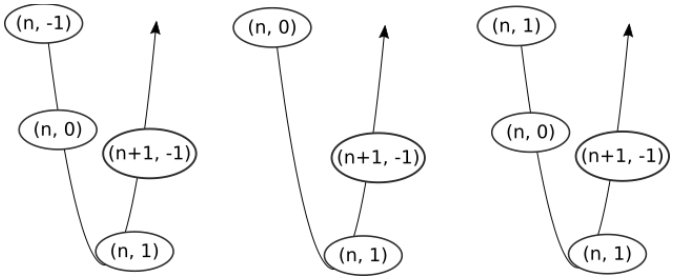
Blank Registration's locker unlocker

Gate detection worksheets for top and right wheel

Initial position of wheels

Right wheel gate location map



Right wheel state table

Down	Start	Traverse	End
0			,-1
1	,-1	,0 ,1	,-1
2	,-1	,0 ,1	,-1
3	,-1	,0 ,1	,-1
4	,-1	,0 ,1	,-1
5	,-1	,0 ,1	,-1

Best Guess of Top and Right Gates

Final DECODING WOOHOO

- Record positions of both wheels
- Enter the start position of the right wheel in the Down,0 start box, and fill in the states (as wanted) in the state table
- Enter sequences of Down moves and feel for a gate, lookup where it happened in the state table. The gate map shows where you usually fall into a gate on each possible traverse type. You may not notice the fall but you may notice the resistance to moving past the gate, -1 positions are hardest to detect.
- Look up the brute forces sequence on the next sheets. 1 2 3 4 I declare a thumb war.

Greetz!!

Mh – for his in-depth research from more than a decade ago.

Prevarikate – for her discovery and description of the LRU walk technique

Sean – I think we were at a con once and you made some comment about speed dials in a lock village lol.

BosnianBill – I am mailing you a cutaway make a video! You inspired me to beat this lock.

MasterLock – for not putting false gates on the wheels making this method possible.

Knollan – for using false gates, now I can use this type of lock more securely.

If you want to mail me a masterlock ONE email me to arrange it! david a7 frop d0t net

Blank Registration's locker unlocker

Brute force when the top and right gates are known

((0,-1),(0,-1))
0URRRRD
0UUUURD
0UUURRD
0UURRRD
0UUDRRRD
0UUUUDRD
0UDRRRRD
0LLRRRRD
0ULRRRRD
0UULRRRD
0UUUULRD
0UUUDRRD
0UUULRRD
0LLUURRDD
0LUUUUDRD
0UUUDLRRD
0UUULLRDD
0UUUUDLRD
0ULLRRRDD
0UUDLRRRD
0UUUDLRRD
0UUUDDLLRRD
0UUUDLUDRD
0UULLLRDDD

((0,-1),(0,0))
0RRRRR
0DURRRR
0DUURRR
0RDRRRR
0LRRRRR
0DUUURR
0RLRRRR
0DRRRRR
0DUUUUR
0DUURLRR
0DUUURDR
0UDDURRR
0DUURDRR
0DUULRRR
0UUDDRRR
0DURDRRR
0URDDRRR
0DLRRRRR
0UDDRRRR
0DUUULRR
0UUUUDDR
0DUUDURR
0DUDRRRR
0UUUDDUR
0RUUUULR
0LRLRRRR

0UURDDRR
0DRURRRR
0DLURRRR
0UUUDDRR
0UUDDURR
0LLDDRRRR
0UUUDDULR
0UDDLRRRR
0UUDDURLR
0UDDULRRR
0UUUDUDDR
0UUDDLURR
0UDDRURRR
0UUDDULRR
0DDLLUURR
0DLRDRRRR
0UDDLURRR
0UUDDLRRR
0UUUUDDLR
0UUUDDRUR
0LDUUUULR
0DLRURRRR
0DLLDRRRR
0DUDLRRRR
0LUUUDDUR
0UDUDDRRR
0LUUUUDDR
0UUDDRURR
0UUDUDDLRR
0UUDDLRDRR
0UDDDULLRR
0UUUDDLUDR
0DUDLRURRR
0UDDDLLURR
0LLUDDDRRR
0DLRDLRRRR
0UDUDDDLLRR
0DLRDLRDRRR
0DUDDDLLLUR

((0,-1),(0,1))
unreachable
state,you done
goofed

((0,-1),(1,-1))
0RRRRD
0UUUURDD
0UUURRDD
0URRRRDD
0UUUUDDR
0UURRRDD
0UDURRRDD
0UDDURRRD
0UDDDRRRR
0UUUDDDDR
0UUUUDDDR
0DDLURRRR
0DUUURDDR
0RDUULRRR
0DURDDRRR
0DUDDURRR
0DDUUUULR
0RUUUUDDR
0UDDDRRRR

0UUURRDD
0DUUURRD
0UUUUDDRD
0UUDDRRRD
0LLRRRRDD
0UUUDDRRD
0ULRRRRDD
0DLRRRRRD
0UUUULRDD
0UDDRRRRD
0UUULRRDD
0UUULRRDD
0LUUUUDDRD
0UUUUDDLRD
0DUDLRRRRD
0UUDDLRRRD
0UUULLRRDDD

((0,-1),(1,0))
0ULLLLR
0LLLLUR
0LLLLLR
0ULLLLDR
0DDUUUUR
0DLLLLLR
0DDUUURR
0RDUUURR
0RDDRRRR
0RDUUUUR
0DDURRRR
0LLLLUDR
0RDURRRR
0RDUURRR
0DDRRRRR
0DDUURRR
0LLLLLDR
0RDURLRRR
0DDRURRRR
0DUUDDURR
0DDUULRRR
0DUUUDDUR
0RDUUDRRR
0RDUUURDR
0UUURDDDR
0DUUURDUR
0DUURDDRR
0RDUURLRR
0RDUUUUDR
0URDDDRRR
0RDURDRRR
0UUUUDDDR
0DDLURRRR
0DUUURDDR
0RDUULRRR
0DURDDRRR
0DUDDURRR
0DDUUUULR
0RUUUUDDR
0UDDDRRRR

0DUURDURR
0DDULRRRR
0DDLRRRRR
0DUDDRRRR
0RDUUUULR
0DURDURRR
0UUDDDRRR
0UDDDURRR
0RDUURDRR
0UUUDDDUR
0LDDUUUUR
0DDUUURLR
0DDUURLRR
0DDURLRRR
0RDUUULRR
0LUDLLLLR
0RDUUUDRR
0RDUUURLR
0UDUDDDRRR
0LDDUUUULR
0UUDDDURLR
0DDLRDRRRR
0UUDDDLURR
0UDDDURLRR
0UDDDLURRR
0DDDLLUURR
0LLLLLRDDR
0UDUDDDLRR
0UUDDDLRDR
0LLUDDDDRR
0UDUDDDLRR

((0,-1),(1,1))
unreachable
state,you done
goofed

((0,-1),(2,-1))
0LLLLLRD
0LLLLURD
0ULLLLRD
0RRRRRDD
0DUUUURDD
0DLLLLLRD
0RDUUUURD
0URRRRDDD
0DURRRRDD
0UUUURDDD
0LLLLUDRD
0RDUUURRD
0DUUURRDD
0UUURRDDD
0DUURRRDD
0DDRRRRRD
0RDUURRRD

0ULRRRRDDD
0UUUULRDDD
0DUURDURRD
0DUUURDURD
0DURDURRRD
0UULRRRDDD
0DDLRRRRRD
0UULLRRDDDD

((0,-1),(2,0))
0LLLURR
0URLLUR
0URLLLR
0RLLLLR
0LLLUUR
0ULLLUR
0LLLLRR
0ULLLRR
0UULLLR
0URLLUDR
0UUDLLLR
0LLLLDRR
0LLLUDRR
0UDLLLUR
0URLLLDR
0DLLLLUR
0LLLLRLR
0DLLLLRR
0ULLLDRR
0UULLLDR
0LLLUUDR
0RDDURRRR
0LLLLLDDR
0LLLLUDDR
0DLLLLRDR
0DDLLLLLR
0RDDDRRRR
0DLLLLRUR
0DUDLLLLR
0UDDLLLLR
0UDLLLLDR
0DDDUUUUR
0LUUDLLLR
0LUDLLLUR
0DDDUURRR
0DDDUURRR
0RDDUUURR
0RDDUUUULR
0UUURDDDDR
0UUUULRDDD
0DDDDUUUUR
0DDDDUUUUL
0UDDDDDDDR
0DDDDDDDDR
0UDDDDDDDR
0UDDDDDDDL
0UDDDDDDDR
0UDDDDDDDL
0UDDDDDDDR
0UDDDDDDDL

Blank Registration's locker unlocker

Brute force when the top and right gates are known

0DDLLLLRUR
0UDUDDLLLR
0UDDLLLLDR
0DDLLLLLDR
0DDDDUUUUR
0LUUDLLUDR
0DUDLLLRUR
0DUDDLLLLR
0LLLLUDDDR
0LUDDLLLUR
0UUDLUDLLR
0UDDLLLUDR
0UDDLUDLLLR
0UUUDDDDDUR
0UUDDDDDURR
0UUURDDDDDR
0UDDDDDLURRR
((0,-1),(3,1))
unreachable
state,you done
goofed
((0,-1),(4,-1))
0LLUUURD
0ULLRRRD
0LLUURRD
0URLURRD
0UUULLRD
0UURLURD
0URLLRRD
0UURLLRD
0LLLRRRD
0UUUDLLRD
0LLUUUDRD
0UULLLRDD
0UURLUDRD
0LLLUURDD
0ULLLRRDD
0LLLLRRDD
0LLLURRDD
0UUDLLRRD
0UUDLLUDRD
0LLLLURDDD
0UUDDLLLRD
0ULLLLRDDD
0UUURRDDDDD
((0,-1),(4,0))
0UUURR
0UUUUR
0URRRR
0UURRR
0UUURDR
0LLRRRR
0LUUUUR
0LURRRR
0UUDLLRRR
0UUUDUDR
0DLLRRRR
0UUUUDLR
0DLLURRR
0UUDULRR
0LUUUUDR
0ULLRRRD
0LLUUURD
0UUUDUDR
0UDLURRR
0LLDRRRR
0LLRLRRR
0UUUDLRR
0DLLUURR
0UDUDRRR
0UUUDULR
0UUDLURR
0DLLUUUR
0LLUUDDRR
0LLUDDRRR
0UUUDLUDR
0UUUDLRDR
0UUDDULLR
0UDDULLUR
0UUDUDLRR
0UUDDLLUR
0DDLLLUUR
0UUDLLDRR
0UDDLLURR
0UUDDLLRR
0UUUDLLDR
0UDLLDRRR
0UUDLRDRR
0UUUDUDLR
0LUUUDLUR
0DLLRDRRR
0LUUUUDLR
0UDDULLRR
0DUDDLLLUR
0LLLUDDDUR
0UDUDDLLRR
0UDDDDULLLR
0UUDDLLLDR
0LLLUDDDRR
0UUDDUDLLR
0UDDDDLLLUR
0LUUUDLUDR
0UUUDDLLRDR
((0,-1),(4,1))
unreachable
state,you done
goofed
((0,0),(0,-1))
0DDDDD
0UUUUUD
0UURRRUD
0UUUUDUD
0UUURRUD
0LUUUUUD
0URRRRUD
0UDRRRRUD
0LLRRRRUD
0UUDRRRUD
0LLRRUUUD
0UUUDUDUD
0LLUUUUDD
0UUULLUDD
0LUURRRUD
0LURRRRUD
0UUUUDLUD
0UULLRRUDD
0DLLRRRRUD
0DUULLLUDD
0LUUUUDLUD
0UUUDLLDUD
0ULLRRRUDD
0UUUDDLLLDUD
((0,0),(0,0))
0
((0,0),(0,1))
0RRRRRU
0DUUUUU
0RRRUUU
0RUUUUU
0RRRRUU
0LLLLLU
0RRUUUU
0RRRDLUU
0DUUUURU
0RRRRDLU
0DRRRRRU
0LRRRRRU
0RRRRULU
0LRRRRRU
0RRRUULU
0LRRRRUU
0UUUUDDU
0URRRRDU
0RRUUULU
0LLDDUUUU
0UDRRRRDU
0ULRRRRDU
0URRRDDLU
0UUUDDRRU
0DUUUDULU
0UUUDDULU
0UUUDUDDU
0DURRRDLU
0LLRRRRDU
0LLRRRDUU
0UUULRRDU
0LUUUUDDU
0UULRRRDU
0UDDRRRRU
0UUDRRRDU
0DDRRRRLU
0LLRRDUUU
0DUURRDLU
0UURRDDLU
0RRRDDLLU
0UUUDRRDU
0UUUDDRRU
0DLRRRRRU
0UUUUDDLU
0DLRRRRDLU
0UUDUDDRRU
0UDUDDRRRU
0UUUDUDDRU
0DLLRRRRDU
0DUDLRRRRU
0LLUURRDDU
0ULLRRRDDU
0UUULRRDDU
0UUULLRDDU
0DDDUULLLU
0LUUUUDDRU
0URRDDDLLU
0UDDDDRRLLU
0UULLLRDDDU
0UUUUUDDU
0UUUUUDDU
0RRRRUUD
0UUUUUDDU
0UUUURRDD
0UUURRUDD
0UUUUDUDD
0UDDRRRRUD
0LLRRRRUD
0LURRRRUDD
0UUUUDUDD
0UUDDRRRUD
0LLRRRRUD
0UUUDDRRUD
0UUUDDRRUD
0UUUUDDLUD
0LUURRRUDD
0UUDDRRRUD
((0,0),(1,0))
unreachable
state,you done
goofed
((0,0),(1,1))
0ULLLLU
0URLLLU
0LLLLUU
0RRRDUUU
0ULLLLDU
0LLLLLDU
0UDLLLLU
0LLLLURU
0RRDUUUU
0DRLLLLU
0LLLLLRU
0ULLLLRU
0RRDUUUU
0RRRRDUU
0RDUURRRU
((0,0),(2,-1))
0DD
0URLLLUD
0ULLLLUD
0UUDLLLLU
0DRRRRRDU
0DUUUUDDU
0DDUUUUDU
0DUUUURDU
0DDLUUUUU
0DDUURRRU
0DDRRRRRU
0UUUURRDU
0RDDRUUUU
0RDUUUURU
0DDURRRRU
0URRRRDDU
0LUUUUUDU
0UURRRDDU
0DLLLLLRU
0UUUUDDDU
0RDUUUULU
0RDDRRRUU
0RRRDUULU
0RDUUURRU
0LUDLLLLU
0UURRRDDU
0RRRRDDLU
0DUURRRDU
0DDDRRRRLU
0UUUUDDRU
0UULRRRDDU
0DURRRDDLU
0UDDRRRRDU
0DDRRRRLU
0UUUUDDRU
0UULRRRDDU
0LDDUUUURU
0DURRRDULU
0DDDRRRRLU
0UUUUDDDRU
0UUURRDDU
0UUUUDDDRU
0UDDDRRRRU
0UUDDDRRRU
0UUDDDRRRU
0UUULRRDDDU
0URRDDDDLLU
0UDDDDRRRLU
0UDDDRRRRLU
0UUUUDDDRU
0UUDDDRRRU
0UDUDLRRRRU
0UDDDDUULLLU
0UDDDDRRLLLU
0UUDDDRRRU
0UUUUDDDRU
0UUUDDDRRU
0UUUDDD

Blank Registration's locker unlocker

Brute force when the top and right gates are known

0DLLLLLDU
0DLLLLRRU
0DDLLLLLU
0RRRDDUUU
0DDDUUUUU
0DLLLLURU
0LLLLUDDU
0DLLLRRLU
0DUDLLLLU
0RRRRDDUU
0UDDLLLLRU
0LLLLUDDRU
0LDDDUUUUU
0DURRRRDDU
0UUUUDDDDU
0DUUUUDDDU
0UDLUDLLLU
0DDDRRRRRU
0DDRRRRRDU
0LUDDLLLLU
0RDDDRRRUU
0DUURRRDDU
0URRRRDDDU
0RDUUUURDU
0DUDLLLLRU
0RDDDRRRRU
0DDDUUUURU
0DLLLLRDLU
0DDDLUUUUU
0RDDURRRRU
0DDLLLLLRU
0DDDURRRRU
0RDDUUUURU
0LUUDLLLRU
0UUUUDDDDRU
0DURRRDDDLU
0UULRRRDDDU
0UDDDDRRRRU
0UUUDDDDULU
0DURRRDDULU
0LDDDUUUURU
0UULLRRDDDDU
0UDDDDDRRRLU
((0,0),(3,-1))
0DDD
0URRLLUD
0RRLLLUD
0UURLLUD
0UULLLUD
0LLLUUUD
0UULLLDUD
0UDURLLUD
0ULLLLUDD
0ULLLRRUD
0LLLLUUDD
0UUDLLLUD
0URLURLUD
0DULLLLUD
0LLLLRRUD
0DUUUUUDDD
0UDDLLLLLD
0UDDLLLLUD
0DDLLLRRUD
0UUUUDUDDDD
((0,0),(3,0))
unreachable
state,you done
goofed
((0,0),(3,1))
0UUULLU
0UURRLU
0RRLLUU
0LLUUUU
0RRRLLU
0UUURLU
0URRRLU
0URLLRRU
0RLLLDUU
0UDURRLU
0LLUURRU
0RRLLUDU
0UURLUDU
0UULLRRU
0UURLURU
0UUDURLU
0LLURRRU
0UUDULLU
0LLLRUUU
0RRLLLDU
0URLURRU
0DUULLLU
0LLUURRU
0RRLLUDU
0UURLUDU
0UULLRRU
0UURLURU
0UUDURLU
0LLURRRU
0UUDULLU
0LLLRUUU
0RRLLLDU
0URRDLLU
0UURLLRU
0DRRRLLU
0UUULLRU
0LLLURRDU
0DLLLURRU
0DDLLLLLU
0DDLLLLLD
0UUDLLLDU
0UUDDLLLU
0UUULLRDU
0UDDRRLLU
0DDRRLLLU
0DLLLLDUU
0UDDULLLU
0LLLLRRDU
0DDDDUUUUU
0LUUUDLLRU
0UUDDLLLRU
0DUDDLLLLU
0UUDLUDLLU
0DUDLLLRRU
0UDDLLLRRU
0DDLLLLURU
0LUUDLLUDU
0DDLLLLLDU
0DDLLLLUDU
0ULLLLRRDU
0DLLLLLRRU
0UUUUUDDDU
0LLLLUDDRU
0LLLLUDDDU
0UDDULLLRU
0UUDLUDLLU
0UUDDLLLRU
0UUDLUDLLU
0UUUDLLLRU
0UUUUDLLRU
0UUUUUDLRU
0UDDDULLLU
0DDDLLLLUU
0UUUDLUDLU
0UUUDLLRRU
0URRRRLU
0LUUUURU
0RRRLLDU
0URRRDLU
0LRRRRLU
0UUURLDU
0URRRUDU
0LLRRRRU
0UURRUDU
0LLRRRUU
0LUURRRU
0LLRRUUU
0UDRRRRU
0UUDRRRU
0UUUDUDU
0UUUUDLU
0UUUDRRU
0LLDUUUU
0LUUUUDU
0UURRLDU
0RRRLLDU
0LURRRRU
0UURRDLU
0LLRUUUU
0URRRLDU
0DLLURRRU
0UULLRRDU
0UDDRRRLU
0LUUUUDLU
0UUULLRDU
0DLLLDUUU
0UUDDRULU
0DLLUURRU
0URRRDDLL
0UUUUDUDL
0RRRDDLLL
0URRRDLLD
0LUUUUULD
0UURRDDLL
0UUUDRRDL
0UUUUDLLD
0UUUULRDL
0DRRRRDLL
0UUURDDLLD
0UUUDLRRLD
0UUUUDLUDL
0UUUULLRDDL
0DLLRRRRDL
0UUDDRRDLL
0UUDDLLRRLD
0URDDDLLLLD
0UUDDRRLLL
0UUUDRRRDL
0UUUUDLLRRU
0UUUUDLUDU
0UUDDDLLLRU
0UUUUUDLUDU
0UDDDDLLLLU
0DDDLLLUURU
0LLLLDDDUU
0UUDDULLRU
0LUUUDLUDU
0UDDDDLLLRU
((0,1),(0,0))
0L
0RRRRRL
0RLRRRRL
0DUUURRL
0DUURRRL
0LRRRRRL
((0,1),(0,-1))
0DUUUURL
0UUUDDURL
0UUUUDDRL
0DDRRRRLL
0UDDURRRL
0UUUDDRRL
0UUUDDRRL
0DLRRRRRL
0UDDRRRRL
0LDUUUUDL
0RRRRRLLD
0UUUUDDRL
0UUUDDURL
0UDUDDDRRL
((0,1),(0,1))
0ULLLLL
0RUUUUUL
0RRRRUUL
0RRRRRUL
0RRRRRUL
0UUUDDRRL
0UUUDDRRL
0UUUUDDRL
0UUUUDDRL
0UUUUDD

Blank Registration's locker unlocker

Brute force when the top and right gates are known


```
0URRRDDLLD
0DLRRRRRLD
0UUUUULRDDL
0UUUUDUDLD
0LUUUUUDDL
0UULRRRDDL

((0,1),(1,0))
0URLLLL
0RLLLLL
0LLLLLRL
0DRLLLLL
0RDUURRRL
0DDRRRRRL
0RDUUUURL
0RDUUURRL
0LUDRLLLL
0DDUURRRL
0DDUUUURL
0DLLLLLRL
0DDURRRRL
0DUUURDURL
0DUUUDDURL
0DURDURRRL
0UUUDDDURL
0DUUDDURRL
0DUDDRRRRL
0LDDUUUURL
0DUDDURRRL
0DUURDURRL
0UDDDURRRL
0UDUDDDRRRL
0UDUDDDDRRLL

((0,1),(1,1))
0UULLLL
0LUULLLL
0UDULLLL
0DULLLLL
0URLULLL
0DDUUUUUL
0RRRRDUUL
0UDLULLLL
0RRRDUUUL
0RRDUUUUL
0DLULLLLL
0RDUUUUUL
0DUURRRDUL
0DURRRRDUL
0UUUUDDDUL
0RRRDDUULL
0UURRRDDUL
0DDRRRRRUL
0URRRRDDUL
0DUUUUDDUL
0LDDUUUUUL
0DUUUURDUL
0RRRRDDULL
0UDDDRRRRUL
0DDLRRRRRUL

((0,1),(2,-1))
0DDL
0DLD
0LDD
0UULDLLL
0URDLLLL
0RLLLLLD
0URLDLLL
0UULLLLD
0URLLLLD
0UUDLLLL
0RDLLLLL
0RRRRRLDD
0LUUDLLLL
0UDLLLLLD
0DUDLLLLL
0LUULLLLD
0DUULLLLL
0UDUDLLLL
0URRRRDDLD
0UUUUUDDLD
0RRRDUUUDL
0RRRDUUULD
0UUUUUDDDL
0DDRRRRRDL
0DUUUURDLD
0LRRRRRLDD
0UURRRDDLD
0UURRRDDDL
0DLLLLLRDL
0UUUURDDDL
0DURRRRDDL
0RDUUUUULD
0RDUUUURLD
0RDUURRRLD
0DUURRRDLD
0UDLUDLLLL
0DUUUURDDL
0RRDUUUULD
0UUUUURDDLD
0RDUURRRDL
0RDUUUURLD
0RDUUUURDL
0DUURRRDDL

((0,1),(2,0))
0URRLLL
0UURLLL
0RRLLLL
0DRRLLLL
0UDDRRLLL
0UULRRRDDDL
0UULRRRDDLD
0DDLD
0DDDL
0LDDD
0RRLLLLD
0UURLDLL
0URRLLLD
0UUULLLD
0URRDLLL
0URRDLLL

((0,1),(2,1))
0UUULLL
0RRULLLL
0URRULLL
0LUUULLL
0UUUUUDDDL
0DDRRRRRDL
0DUUUURDLD
0URRLULL
0URRLULL
0UUDULLL
0DRRULLLL
0UDDULLLL
0DDULLLLL
0RDDUUUUUL
0RDDUUUUUL
0RDDUURRRL
0LUDDRLLLL
0DDLLLLLRL
0DURDDURRRL
0LDDDUUUURL
0DLLLLRDLRL

((0,1),(3,-1))
0DDLD
0DDDL
0LDDD
0RRLLLLD
0UURLDLL
0DRRRLLL
0UDURRLL
0UUDRRLL
0RLLLRRL
0URLURRL
0UUDURLL
0UDDRRLLL
0UUDUDLLL
0URLURLDL
0LUUULLLD
0UDRRDLLL
0UUDULLLD
0RRRRLDDD
0DUDLLLLLD
0LUUDDLLLL
0LUULLLLDD
0UUDLUDLLL
0LUUDLLLLD
0DLLLLRRLD
0UDDLRRRRL
0UDUDLLLLD
0UDDRRULLL
0UDDDULLLL
0DUDDLLLLL
0DUDLLLLRDL
0RRRRDUUDLD
0RRRRDUUDDL
0RDUURRRDLD

((0,1),(3,0))
0UURRLL
0URRRLL
0UUURLL
0RRRLLL
0UUUDRLL
0LLLRRRL
0UURLURL
0DRRRLLL
0UDURRLL
0UUDRRLL
0RLLLRRL
0URLURRL
0UUDURLL
0UDDRRLLL
0UUDUDLLL

((0,1),(3,1))
0UUUULL
0RRRULLL
0UUURLUL
0UUUDULL
0LUUUULL
0URRRLUL
0UURRULL
0RRUULLL
0DUUULLL
0UURRLUL
0URRRULL
0URRDULLL
0DDUULLLL
0LLLRRRUL
0UUUDULLL
0UUUULLLL
0DDDDULLL
0UUDDRRRL
0UUUDDRRL
0UUDDDRRL
0UUUDDDRL
0UUUUDDDL
0DUUUDDDL
0UUUUUDDL
0UUUUUUDL
0UUUUUUUL
0UUUUUUUR
0UUUUUUUU
0UUUUUUUD
0UUUUUUDR
0UUUUUUDU
0UUUUUUDL
0UUUUUURL
0UUUUUURR
0UUUUUURD
```

Blank Registration's locker unlocker

Brute force when the top and right gates are known

0LUUURRR
0UUULRRR
0LUUUURR
0UDURRRR
0UUUURLR
0LLRRRRR
0UUUDURR
0UUUUULR
0LURRRRR
0RLLRRRR
0UDRRRRR
0UUUDRRR
0URLRRRR
0UUUUUDR
0LDDDDDR
0UURDRRR
0UULRRRR
0ULRRRRR
0UUUURLR
0UUURDRR
0UUUUUDR
0UUUULRR
0UUUUDRR
0LLDRRRRR
0DLLRRRRR
0DLLURRRR
0UUUDULR
0UUUDUDRR
0UUUUDUDR
0DLLUURRR
0DLLUUUUR
0UUUDULRR
0UDLURRRR
0UUUDLURR
0UUUUDULR
0LUUUUUDR
0UUDUDRRR
0UUDLURRR
0UUDLRRRR
0UUDULRRR
0UUUDLRRR
0LLRLRRRR
0UDUDRRRR
0UUUUDLUR
0UUUUDLRR
0DLLUUURR
0DLLRDRRRR
0UUUUDLLDR
0UUUDLLDRR
0LUUUUDLUR
0UUUUDLUDR
0UUDUDLRRR
0UUUUUDLRR
0UUUUDUDLR
0UUUUUDLRR
0UUUUDUDLR
0UUUUUDLRR
0UUUUUDUDR
0UUUUUDUDLR
0UUUUUDLRDR
0UUUUUDUDLR
0UUUUUDLRDR
0UUUUUDUDLR
0UUUUUDLR

Blank Registration's locker unlocker

Brute force when the top and right gates are known


```
0LLLUUURD
0UULLLRRD
0UULLLLRDD
0LLLUUUDRD
0LLLLUURDD
0LLLLURRDD
0ULLLLRRDD
0UUDLLLRRD
0UURLLUDRD
0URLURLURD
0UUUURRDDDD
0UUDDLLLLRD
0UDDLLLLUDRD

((1,-1),(4,0))
0DDDDR
0LDDDDR
0DDDDLR
0UUULLRR
0URLLRRR
0UUUULLR
0LLLRRRR
0LLUUUUR
0LLUURRR
0LLURRRR
0UULLURR
0UUURLUR
0URLURRR
0ULLURRR
0UURLURR
0UUULLUR
0RLLLRRR
0UULLRRR
0UURLLRR
0UUURLLR
0ULLRRRR
0LLUUURR
0UUURLLDR
0UUDURLUR
0LLUUUUDR
0LLUDRRRR
0UURLLDRR
0LLLDRRRR
0UDLLURRR
0UUDLLURR
0UUUUDLLR
0UUUDULLR
0URLLDRRR
0URLUDRRR
0LLLRLRRR
0UUUDLLUR
0DLLLUUUR
0UUUDLLRR
0UDURLURR
0UUDULLRR
0LLUUUDRR
0UUUULLDR

0DLLLUURR
0UURLUDRR
0URLURLRR
0ULLDRRRR
0UURLURLR
0UUUULLDR
0UUURLUDR

0UDDULLLRR
0UUDDLLLRR
0UUDLLRDRR
0UDDLLLURR
0LLLUDDRRR
0UUUDLLLDR
0UDDULLLUR
0UUUDLLRDR
0LLLUUDDRR
0DUDLLLURR
0LLLUUDDUR
0UUUDUDLLR
0UUDLLLDRR
0UUDDULLLR
0DDLLLLUUR
0UUDUDLLRR
0UUDDLLLUR
0UUUDLLRDR
0UUUUURRU
0DDDDDRU
0UUUUURU
0UUUULLU
0RRRRRLUU
0UUURRRU
0UUURRRU
0LRRRRLUU
0LLRRRRRU
0UUURRRDU
0UUURRRDU
0LLDUUUUU
0UDRRRRRU
0LUUURRRU
0UUUURLDU
0UUUDRRRU
0UURRRLDU
0UUUUDUDU
0UUURRLDU
0URRRRUDU
0URRRRLDU
0UURRRUDU
0LRRRRRLU
0RRLLDUUU
0UUURRUDU
0LLRRRRUU
0LUUURRRU
0LUUUUURU
0URRRRDLU
0UUUUUDRU
0LLRRRRUU
0LURRRRRU
0LURRRRRU

0LUUUURRU
0LLRRUUUU
0LUUUUUDU
0UUDRRRRU
0RRRRLLDU
0LLRUUUUU
0LRRRLUUU
0DLLRRRRRU
0UUDDRRRLU
0DLRRRRRLU
0DDRRRRLLU
0UURRDDLLU
0DLLUUUURU
0UUUUDLLDU
0LLURRRRDU
0UUUDDRRLU
0DLLUUURRU
0UUUULLRDU
0URRRDDLLU
0UDDRRRRLU
0DLLURRRRU
0ULLRRRRDU
0UUULLRRDU
0UUUDDULLU
0LLUUURRDU
0UUUUDLUDLU
0UUULLLRDDU
0LUUUUDLUDU

((1,0),(1,-1))
0UD
0LUD
0RUDDDDD
0DUDDDDD
0RDUDDDD
0UUURRRUD
0URRRRRUD
0UUURRRUD
0UUUUUDUD
0UUUURRUD
0LLRRRRRUD
0UUUUDRRUD
0UUUDRRRUD
0UUUUUDLUD
0UUUULLUDD
0LURRRRRUD
0LLRRRRUUD
0UUUUDUDUD
0UUDRRRRUD
0LLUUUUUDD
0LUUURRRUD
0ULLRRRRUDD
0UUUUDLLDUD
0UUULLRRUDD

((1,0),(1,0))

unreachable
state,you done
goofed

((1,0),(1,1))
0RU
0DU
0LDU
0DLU
0LRU
0DRU
0DLRU
0URLLLLU
0RRUUUUU
0RRRUUUU
0ULLLLLU
0RRRRRUU
0LLLLLUU
0RRRUUUU
0LRRRRUUU
0RRDLUUUU
0DUUUURRU
0UDLLLLLU
0UUUUUDDU
0UUUUURRU
0UUUURRRU
0UUUUUULU
0UUUUURDU
0LRRRUUUU
0RRRUUULU
0URRRRRDU
0DUUURRRU
0DURRRRRU
0DUUUUUDU
0RRUUUULU
0LRRRUUUU
0RRRUUULU
0UUUURRDU
0DLLLLLLU
0DUUURRRU
0DURRRRRU
0DUUUUUDU
0RRUUUULU
0LRRRUUUU
0RRRUUULU
0UUUURRDU
0UUUULLRU
0UUUULRRDU
0UUUULRRDU
0UUUUDDDRU
0UUULRRRDU
0UUUUDUDDRU
0UUULRRRDDU
0UDUDDRRRRU

((1,0),(2,-1))
0DUD
0RUD
0UDD
0LUDD
0DLRUD
0RRRUUUUD
0RRRRUUUD
0ULLLLLUD
0RDUDDDDD
0RRRUUUUD
0LLLLLUUD
0URLLLLUD
0UURRRUDD
0UDLLLLLUD
0UUUURRDUD
0UUURRRUDD
0UUURRRDUD
0UUUUDUDUDD
0UUUUDDRRUD
0UUUDDRRRUD
0UUUUUDRRUD
0LURRRRUDD
0UUUUDDRRUD
0LUUDLLLLU
0RDU
0DDU
0DDLU
0DDRU

0LDDU
0LDDRU
0DDLRU
0DLRDU
0LLLLUUU
0URRLLLU
0UUULLLU
0UUULLLU
0RRLLLLU
0URLLLURU
0LLLLUURU
0LLLLURRU
0URLURLLU
0LLLLLRUU
0DULLLLLU
0LLLLLDUU
0LLLLUUDU
0DLLLLLUU
0DRRLLLLU
0ULLLLRRU
0UDURLLLU
0RRRDUUUU
0URLLLLDU
0RRDUUUUU
0UUULLLRU
0UDULLLLU
0RLLLLLDU
0URLLLUDU
0UUULLLDU
0UDULLLLU
0URLLLLRU
0RRRRDUUU
0URLLLLRU
0RDUUURRRU
0DDUURRRRU
0UURRRRDDU
0DUDLLLLLU
0DUURRRRDU
0RDDRRRRUU
0DDURRRRRU
0URRRRRDDU
0RDUUUURRU
0UUUUUDDDU
0UDDLLLLLU
0DLLLLRRLU
0DUUURRRDU
0RDUURRRRU
0RRRRDDLUU
0DDUUUURRU
0DLLLLLURU
0DUUUUURDU
0DLLLLLRRU
0DDUUUUULU
0LUUDLLLLU
0RDDRRRUUU
0UDLLLLLDU
0UUULRRRDDU
0UDDRRRRRDU
```

Blank Registration's locker unlocker

Brute force when the top and right gates are known


```
0UDLUDLLLLU
0UDDDRRRRRU
0UUDDDRRRRU
0URDDDRRRRU
0UUDDRRRRDU
0DURRRRDDLU
0UUUURDDDRU
0UUUUDDDULU
0DUURRRDULU
0URRRRDDDLU
0DUUUURDULU
0UULRRRRDDU

((1,0),(3,-1))
0UDDD
0RDUD
0DUDD
0RUDD
0LUDDD
0DDLRUD
0DLRDUD
0UULLLLUD
0RRLLLLUD
0URRLLLUD
0UURLLLUD
0UUDLLLLUD
0RRRRDUUUD
0ULLLLRRUD
0RRUUUUUDD
0LLLLLUUDD
0DULLLLLUD
0UDURLLLUD
0ULLLLLUDD
0UULLLLDUD
0RRRRUUUDD
0URRRRRUDDD
0UDDLLLLLUD
0UURRRRDUDD
0UUDDDRRRRUD

((1,0),(3,0))
unreachable
state,you done
goofed

((1,0),(3,1))
0DDDU
0RDDU
0LDDDU
0DDDRU
0DDDLU
0DDDLRU
0LDDDRU
0DDLRDU
0LLLUUUU
0RRRLLLU
0URRRLLU
0UUURLLU
0DUURRRDDU
0UUDLUDLLLU
0UUDLLLLLRU
0UUDULLLLRU
0DUURRRRDDU
0UUDDLLLLRU
0DUDLLLLRRU
0RRLLLUU
0UURRLLU

((1,0),(4,-1))
0RDUDD
0DUDDD
0RUDDD
0UDDDD
0LUDDDD
0DDDLRUD
0DDLRDUD
0UUULLLUD
0UUURLLUD
0UURRLLUD
0UURLURLUD
0UUULLLDUD
0UUDURLLUD
0UULLLLUDD
0UULLLRRUD

((1,0),(4,0))
unreachable
state,you done
goofed

((1,0),(4,1))
0RDDDU
0DDDDU
0DDDDLU
0DDDDRU
0LDDDDU
0DDDDLRU
0UUUULLU
0RRRLLUU
0RRLLUUU
0DDDLRDU
0UUURRLU
0RRRRLLU
0URRRRLU
0LLUUUUU
0LDDDDRU
0UUUURLU
0UUURRRLU
0LLLRRRRU
0UUUULLDU
0UUURLLDU
0UURRLLDU

((1,1),(0,-1))
0RDDDLD
0RDDDDL
0RLDDDD
0DUDDDDL
0UUURRLUDU
0UUUUDLLU
0LLUUUURU
0LLLLUUDDRU

((1,0),(4,-1))
0RDUDD
0DUDDD
0RUDDD
0UDDDD
0LUDDDD
0DDDLRUD
0DDLRDUD
0UUULLLUD
0UUURLLUD
0UURRLLUD
0UURLURLUD
0UUULLLDUD
0UUDURLLUD
0UULLLLUDD
0UULLLRRUD

((1,0),(4,0))
unreachable
state,you done
goofed

((1,0),(4,1))
0RDDDU
0DDDDU
0DDDDLU
0DDDDRU
0LDDDDU
0DDDDLRU
0UUUULLU
0RRRLLUU
0RRLLUUU
0DDDLRDU
0UUURRLU
0RRRRLLU
0URRRRLU
0LLUUUUU
0LDDDDRU
0UUUURLU
0UUURRRLU
0LLLRRRRU
0UUUULLDU
0UUURLLDU
0UURRLLDU
0URRRDLLU
0RLLLDUUU
0UUURLLRU
0UUUULLRRU
0UUUURLRU
0UDURRRLU
0UUUULLRU
0DRRRRLLU
0LLLRRUUU
0RRLLUUDU
0UUUULLLU
0DDUUUUUU
0UUUUDLLU
0LLUUUURU
0LLLLUUDDRU
0UUDDRRLLU
0UUDDULLLU
0DDLLLLLDUU
0UUDDLLLRRU
0DDLLLLUURU
0UULLLLRDDU
0UDDDULLLLU
0UDDULLLRRU
0UUUDLLLLDU
0UUDULLLRRU
0UUDULLLLRU
0UDDDULLLLRU

((1,1),(0,-1))
0RDDDLD
0RDDDDL
0RLDDDD
0DUDDDDL
0UUURRLDU
0UUUULLDU
0UUUUULLU
0UUUUUULU
0UUUUUUUU
0UUUUUUUD
0UUUUUUDD
0UUUUUDDD
0UUUUDDDD
0UUUDDDDD
0UUDDDDDD
0DDDDDDDD
0DDDDDDDU
0DDDDDDUU
0DDDDDUUU
0DDDDUUUU
0DDDUUUUU
0DDUUUUUU
0DUUUUUUU
0UUUUUUUU
0UUUUUUUD
0UUUUUUDD
0UUUUUDDD
0UUUUDDDD
0UUUDDDDD
0UUDDDDDD
0UD
```

Blank Registration's locker unlocker

Brute force when the top and right gates are known

0UUUUDUDDRL
0UDUDDRRRRL
((1,1),(1,1))
0DUL
0RUL
0LDUL
0DLUL
0UULLLLL
0LUULLLLL
0RRRRRUUL
0RDDDDDUL
0RRRUUUUL
0URLULLLL
0RRUUUUUL
0RRRRUUUL
0UURRRRDUL
0LRRRUUUUL
0LRRRRUUUL
0UUURRRDUL
0DDUUUUULL
0DUUUUUDUL
0UUUURRDUL
0LRRRRUUUL
0UDDRRRRRUL
0UUDDRRRRUL
0UUUUDDRRUL
((1,1),(2,-1))
0RLD
0RDL
0DUDL
0DLLD
0RUDL
0UDLD
0DULD
0LLDD
0UDDL
0DDLL
0DLRDL
0LUDDL
0LUDLD
0URLLLLLD
0UULLLLLD
0URDLLLLL
0UULDLLLL
0URLDLLLL
0RDDDDDLD
0UUDLLLLL
0UUUURRDLD
0DUURRRRLD
0DUUUURRDL
0UURRRRDLD
0DUUUUURDL
0RRRRDUUUL
0RRDUUUUUL
0UDDULLLLL
0URLURLULL
0DRRULLLLL
0UUDLULLLL
0URRRRRDDUL
0UURRRRDDUL
0DUURRRRDUL
0DUUUUURDUL
0RRRRDDUULL
0UDDDRRRRRUL
((1,1),(3,-1))
0RDDL
0RLDD
0RDLD
0DDDLL
0DUDDL
0RUDDL
0LLDDD
0DUDLD
0DDLLD
0UDDDL
0UDDLD
0LUDDDL
0DDLRDL
0LUDDLD
0DLRDLD
0UUULLLLD
0UURDLLLL
0URRDLLLL
0RRLLLLLD
0UURLLLLD
0UUUDLLLL
0UUDLLLLLD
0UDURLDLLL
0UUDUDLLLL
0UDRRDLLLL
0UUDLLLLLD
0UURRULLL
0LUUULLLLD
0UDURLLLLD
0UUULLLRDL
0URDDLLLLL
0DRRDLLLLL
0UUDDLLLLL
0UUURLLLLL
0URDDLLLLL
0DUURRRRDLD
0RRRRDUUUDL
0DUUUUURDLD
0RRDUUUUULD
0URRRRRDDLD
0RRRRDUUULD
0UUDLUDLLLL
0DUURRRRDDL
0URRRRRDDDL
0UULRRRRDDDL
0UULRRRRDDLD
((1,1),(3,0))
0DDDRL
0LDDDRL
0DDDLRL
0URRRLLL
0UUURLLL
0RRRLLLL
0DRRRLLLL
0UURLURLL
0UUDURLLL
0UUDRRLLL
0UUDDRRLLL
0UUUDLLLRL
0UUUDLLLRL
0UDDRRLLLL
0UUDUDRLLL
0UUDDRLLLL
0URLURLURL
0LUUUDRLLL
0DDRRLLLLL
0UDDLLLLRRL
0UUDDLLLLRL
0LUUDDRLLLL
0UDUDDRLLLL
((1,1),(3,1))
0RDDUL
0DDDUL
0DDDLUL
0LDDDUL
0DDLRDUL
0UUUULLL
0DUUULLLL
0UUURLULL
0RRRULLLL
0UURRULLL
0LLLLRRRUL
0UUUUDLLL
0UUUUDLLLL
0UUUUDLLLL
0UUUUDL

Blank Registration's locker unlocker

Brute force when the top and right gates are known

0RLLLRRRR
0LLLRRRRR
0UUUURLLDR
0URLLDRRRR
0UUUUUDLLR
0URLURLRRR
0UURLUDRRR
0UUDURLURR
0UURLURLRR
0UUUDULLRR
0URLUDRRRR
0DLLLUUURR
0UUUUDULLR
0UUURLUDRR
0UUUDULLRR
0ULLDRRRRR
0UUUUDLLRR
0UUUULLDRR
0UDURLURRR
0LLUUUDRRR
0UDLLURRRR
0UDDULLURR
0UUUUDLLRR
0UUUULLRDR
0UUUURLRRR
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Blank Registration's locker unlocker

Brute force when the top and right gates are known

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state,you done
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Blank Registration's locker unlocker

Brute force when the top and right gates are known

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unreachable
state,you done
goofed

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0UUURLLLU
0LUDDDLRU
0RRLLLLUU
0DLRDLRDU
0DDLRDLRU
0RRRLLLLU
0UUULLLLU
0LLLLUURRU
0RLLLLLDUU
0DRRRLLLLU

0RRLLLLUDU
0UUULLLLRU
0UURLURLLU
0UUDULLLLU

((2,0),(4,1))
0RRDDU
0RDDUU
0DDDUU
0DDDRRU
0DDDULU
0DDDURU
0RDDURU
0RDDULU
0DDRRDU
0DDDLUU
0LDDDUU
0RDURDU
0DUDDDU
0RDDDRU
0DURDDU
0UDDDDU
0DDDLLDU
0LDDDURU
0DDLRRDU
0LLDDDDU
0LUDDDDU
0UDDDDRU
0DDDDLLU
0DDDLRRU
0UDDDDLU

((2,0),(4,-1))
0RRUDD
0DUUDD
0RRDUD
0RUUDD
0UUDDD
0RDUUD
0DUDUDD
0LUUDDD
0UDUDDD
0DDRRUD
0DDLRRUD
0UDDDLUD
0LLUDDDD
0DLRRDUD
0DDLLDUD
0DDDLLUD
0DDDLLRUD
0DDLLRDUD
0LUDDDLUD
0DLRDLRDUD
0UULLLLRRUD
0DUULLLLLUD
0LLLLURRRUD
0ULLLLRRRUD
0UUDDLLLLLUD

unreachable
state,you done
goofed

((2,0),(4,1))
0RRDDU
0RDDUU
0DDDUU
0DDDRRU
0DDDULU
0DDDURU
0RDDURU
0RDDULU
0DDRRDU
0DDDLUU
0LDDDUU
0RDURDU
0DUDDDU
0RDDDRU
0DURDDU
0UDDDDU
0DDDLLDU
0LDDDURU
0DDLRRDU
0LLDDDDU
0LUDDDDU
0UDDDDRU
0DDDDLLU
0DDDLRRU
0UDDDDLU

((2,0),(4,-1))
0RRUDD
0DUUDD
0RRDUD
0RUUDD
0UUDDD
0RDUUD
0DUDUDD
0LUUDDD
0UDUDDD
0DDRRUD
0DDLRRUD
0UDDDLUD
0LLUDDDD
0DLRRDUD
0DDLLDUD
0DDDLLUD
0DDDLLRUD
0DDLLRDUD
0LUDDDLUD
0DLRDLRDUD
0UULLLLRRUD
0DUULLLLLUD
0LLLLURRRUD
0ULLLLRRRUD
0UUDDLLLLLUD

0UUUULLLRU
0UUUDURLLU
0LLLUUURRU
0UUUUDLLLU
0UUUURLLRU
0UUURLLUDU
0LLLLUURRDU
0DLLLLUURRU
0DLLLLLDUUU
0UURLURLUDU
0URRDDLLLLU
0DLLLLUUURU
0UULLLLLRRDU
0UUDDULLLLU
0DDUULLLLLU
0UUDDRRLLLU
0UUULLLLRDU
0UDDULLLLRRU
0DDDLLLLUURU
0UUDDLLLLLDU
0UUDDULLLLRU

((2,1),(0,-1))
0RRDDLD
0RRDDDL
0RRLDDD
0DURDDDL
0RDURDLD
0UUDDDLD
0URDDDDL
0RDUUDDL
0UUDDDLD
0DDDRRLD
0URDDDDL
0RDUUDDL
0RDDDDLL
0RDURDDL
0RDUUDLD
0UUDDDDL
0RRDDDDL
0RLLDDDD
0RUUDDDL
0RUUDDLD

((2,1),(0,1))
0DUDDDDLL
0DDDLRRLD
0DDDLRRDL
0DDLRRDLD
0DDDDLLDD
0UDDDDDLL
0DDDDLLLD
0LLLLUURRU
0LLLLLLDUU
0UDDDDLDUU
0UUUURDLLL
0UUUURRRLL
0UUUURRLLD
0URRRRRDLL
0UUUURLLLD
0UUUURRRLD
0UUUURRRRL
0UUUURRRRD
0UUUURRRDD
0UUUURRDDD
0UUUURDDDD
0UUUDRRRRD
0UUUDRRRDD
0UUUDRRDDD
0UUUDRDDDD
0UUDRRRRDD
0UUDRRRDDD
0UUDRRDDDD
0UUDRDDDDD
0UDRRRRDDD
0UDRRRDDDD
0UDRRDDDDD
0UDRDDDDDD
0URRRRDDDD
0URRRDDDDD
0URRDDDDDD
0URDDDDDDD
0RRRRDDDDD
0RRRDDDDDD
0RRDDDDDDD
0RDDDDDDDD
0DDDDDDDDD

0LUDDDDDLL
0RRRRDLLLL
0RRRRLLLLD
0LUDDDDLLD
0DUDDDLRDL
0UUUURLDLL
0URRRRLDLL
0DDDLLRDLD
0UUUDURLDLL
0UUUURDLLLD
0UUUURLURLLD
0UUUURLURLDL
0UUURDDLLLLLD
0UUDDRRDLLLL

((2,1),(0,0))
0LLL
0DDDDURL
0RDDDURL
0DDDDRRL
0URRRRRLL
0UUUUURLL
0DUDDDDRL
0UUURRRLL
0UUUURRLL
0DDDDRRLL
0UUUURRLL
0UUUURRLL
0UUUUR

Blank Registration's locker unlocker

Brute force when the top and right gates are known

0RLLD
0URDL
0UUDL
0URLD
0RDLL
0LUUDL
0UDUDL
0LUULD
0DLLLD
0UDDLL
0DULLD
0DDLLL
0UDLLD
0DUDLL
0LLLDD
0LUDLLD
0UDLUDL
0LUDDLL
0DLLRDL
0LUDLUDL
0RRDDDDLD
0RRDDDDDL
0RRLDDDDD
0UUUUURRDL
0UUUUURRLD
0DURDDDDDL
0URLDLLLLL
0UULDLLLLL
0UURRRRRDL
0RDURDDDLD
0UURRRRRLD
0RUUDDDDLD
0RDUUDDDLD
0LRRLDDDDD
0RDURDDDDL
0UUULRRRRDL
0UUDRRRRRLD
0UUUUDRRRDL
0UUUURRDDLL
0UUUUUDRRDL
0UUUULRRRDL
0UUUUDRRRLD
0UUUUDURRLD
0UUUURRDLLD
0UUDURRRRLD
0UUUUULRRDL
0UUUUUDRRLD
0UUDLRRRRRLD
0UUUUUDLRRLD

0DDLLRL
0UDDLRL
0DLRDLRL
0LUDDLRL
0URRLLLLL
0UURLLLLL
0UDURLLLLL
0URLURLLLL
0DUUUUURRL
0UUDRLLLLL
0DUUDURRRRL
0UUDLLLLLRL
0UUDDRRRRRL
0UUDDURRRRL
0UUUUDDURRL
0UUDUDDRRRRL
0UUUUDUDDRRL

((2,1),(2,1))
0DUUL
0RUUL
0RRUL
0UDDUL
0DDULL
0DUDUL
0DRRUL
0LDUUL
0DLRRUL
0LUDDUL
0DDLULL
0DLLRDUL
0LUDDLUL
0UURRRRRDL
0UUUUUUUUL
0URRULLLLL
0URRLULLLL
0LRRRUUUUUL
0LRRRRRUUUL
0URLURLULLL
0UUDDRRRRRUL

((2,1),(3,-1))
0RRLD
0RRDL
0RUULD
0RUUDL
0UUDDL
0UUDLD
0DURDL
0DRRDL
0URDDL
0RRDDL
0LRRLD

0URDLD
0DDDLLL
0UDDLLD
0DDLLLD
0DUDDLL
0LLLDDD
0DLRRDL
0DLRRLD
0LUULDD
0UDUDDL
0DUDLLD
0LUUDDL
0DUDLRDL
0DDLLRDL
0LUDDDLL
0LUDDLLD
0DLRDLDL
0LUDDLDL
0LUDUDLD
0LUDDLUDL
0DLRDLRDL
0RRDDDDDLD
0URRLLLLLD
0UUULLLLLD
0UURDLLLLL
0URRDLLLLL
0UURLLLLLD
0UUDURLLLLD
0UUDURLDLLL
0UULLLLLLRDL
0UURRRRRDLD
0UURRRRRDDL
0UUULRRRRDDL
0UUULRRRRDLD
0UUUUUULRRDLD

((2,1),(3,0))
0DDRRL
0RDURL
0DDURL
0LDDURL
0DDDRLL
0UDDDRL
0DDLRRL
0DUDDRL
0LUDDDRL
0UDDDLRL
0DDDLLRL
0UUURLLLL
0LUDDDLRL
0URRRLLLL
0RRRLLLLL
0DRRRLLLLL
0UUDDLLLLL
0RRDDDDDL
0RRLDDDDD
0UURRRRRDL
0UURRRRRLD
0UUUUUDRRL
0UUUUURRDL
0UUUUUDRRL
0UUUULRRRL
0UUUUUDRRLD
0UUUUUDURRLD
0UUUURRDLLD
0UUDURRRRLD
0UUUUULRRDL
0UUUUUDRRLD
0UUDLRRRRRLD
0UUUUUDLRRLD

((2,1),(2,0))
0RRL
0DRRL
0RLRL
0LRRL
0DDRLL
0DLRRL
0UDDRL
0LUDDDRL

0URDLD
0DDDLLL
0UDDLLD
0DDLLLD
0DUDDLL
0LLLDDD
0DLRRDL
0DLRRLD
0LUULDD
0UDUDDL
0DUDLLD
0LUUDDL
0DUDLRDL
0DDLLRDL
0LUDDDLL
0LUDDLLD
0DLRDLDL
0LUDDLDL
0LUDUDLD
0LUDDLUDL
0DLRDLRDL
0RRDDDDDLD
0URRLLLLLD
0UUULLLLLD
0UURDLLLLL
0URRDLLLLL
0UURLLLLLD
0UUDURLLLLD
0UUDURLDLLL
0UULLLLLLRDL
0UURRRRRDLD
0UURRRRRDDL
0UUULRRRRDDL
0UUULRRRRDLD
0UUUUUULRRDLD

((2,1),(4,-1))
0RRDDL
0RRLDD
0RRDLD
0RDURLD
0URDDLD
0URDDDL
0RLLDDD
0RDURDL
0UUDDDL
0DDRRLD
0LRRLDD
0RUUDDL
0RDUULD
0RUUDLD
0DDRRLD
0RDDDLL
0UUDDLD
0RDUUDL
0DURDDL
0LLLDDDD
0UDDDLRL
0DDDLLRL
0UUUURLLL
0LUDDDLRL
0URRRLLLL
0RRRLLLLL
0DRRRLLLLL
0UUDDLLLLL
0UURRRRRDDUL

((2,1),(4,0))
0RDDURL
0DDDURL
0DDDRRL
0UDDDDRL
0DDDDRLL
0LDDDURL
0DUDDDRL
0DDDLRRL
0UDDDDLRL
0LUDDDDRL
0LUDDDDRL
0UDDDDLRL
0UUDDRRLLLL
0UUUDUDRLLL
0UUUDDDRLLLL
0UUUDDDDRLLL
0UUUDDDDDRLL
0UUUDDDDDDRL
0UUUUDDDDDDL

((3,-1),(0,-1))
0RRRDD
0UURDDD
0RDURRD
0URRDDD
0RDUURD
0DDRRRD
0DURRDD
0DUURDD
0UDDDRRD
0DDLRRRD
0DURDURD
0LLRRDDD
0UULRDDD
0ULRRDDD
0UUDDDRD
0LLURDDDD
0DDDLLRRD
0UUDDDLRD
0DUDDLRRD
0ULLRDDDD
0LLLRDDDD
0DDLRDLRRD
0DUDDDLLRD
0UDDDLUDRD
0DDDLLRDLRD

((3,-1),(0,0))
0DDDRRR
0DDDURR
0DDDUUR
0RDDDRR
0RDDURR
0RDDUUR
0RUUDDDR
0DDDUULR
0DURDDDR
0DDDLRRR

0DUDDDUL
0DDDRRUL
0DURDDUL
0RDURDUL
0UDDDDUL
0LUDDDDUL
0DDDDLULL
0DDDLRRUL
0UDDDDLUL
0DDLRRDUL
0DDDLLRDUL
0RRRRULLLL
0UUUURLULL
0DUUUULLLL
0UUURRULLL
0LUDDDDLUL
0DDUUULLLLL
0DRRRRULLLL
0UUURLURLUL
0UUDDRRULLLL

0RDDDUUR
0RDURRD
0URRDDD
0RDUURD
0DDRRRD
0DURRDD
0DUURDD
0UDDDRRD
0DDLRRRD
0DURDURD
0LLRRDDD
0UULRDDD
0ULRRDDD
0UUDDDRD
0LLURDDDD
0DDDLLRRD
0UUDDDLRD
0DUDDLRRD
0ULLRDDDD
0LLLRDDDD
0DDLRDLRRD
0DUDDDLLRD
0UDDDLUDRD
0DDDLLRDLRD

0URDDDDR
0DUDDDUR
0UDDDDUR
0RDURDUR
0RDDUULR
0DDDRURR
0DUDDDRR
0RDDULRR
0DURDDUR
0DDDURLR
0RDURDDR
0LDDDUUR
0UUUDDDR
0RDUUDDR
0RDDURLR
0DDDULRR
0UDDDDRR
0DDDLURR
0UDDDDLRR
0DDDLLDRR
0LLDDDDRR
0UDDDDLUR
0DDDLRDRR
0UDDDDULR
0UUDDDDLR
0DDDDLLRR
0UDDDDRUR
0DDDDLLUR
0DUDDDLRR
0DDDLRURR
0LLLLRRRRR
0DDDDLLLDR
0UUUURLLLR
0LLLDDDDDR
0LLUDDDDDR
0UUUULLLRR
0LLLURRRRR
0ULLLRRRRR
0DUDDDDLLR
0DUDDDLRUR
0UDUDDDDLR
0LUUDDDDLR
0LUDDDDLUR
0UDDDDLUDR
0DDDDLLRDR
0LLLUUUURR
0DDDLRDLRR
0UDDDDDLLR
0UUUURLLUR
0UDDDDLLDR
0UUURLLUDRR
0UDDDDLUDLR
0DDDLRDLRDR
0UUURLURLUR

Blank Registration's locker unlocker

Brute force when the top and right gates are known


```
0UUUURLLLDR
0DLLLLUUURR
0UUURLURLLR
0UUUDURLLUR
0ULLLDRRRRR
0UUDDULLLLUR

((3,-1),(0,1))
unreachable
state,you done
goofed

((3,-1),(1,-1))
0RRRDDD
0UURDDDD
0DUURDDD
0RDUURDD
0URRDDDD
0DDDRRRD
0RDURRDD
0DURRDDD
0UULRDDDD
0UUDDDDRD
0ULRRDDDD
0DDDLRRRD
0UDDDDRRD
0LLRRDDDD
0DURDURDD
0RDURDURD
0DUDDDLRRD
0LLURDDDDD
0UUDDDDLRD
0DDDDLLRRD
0ULLRDDDDD
0UUUURLLURD
0DDDLRDLRRD
0UDDDDLUDRD
0UUUURLLLRD

((3,-1),(1,0))
0LLUR
0LLLR
0ULLR
0LLUDR
0DLLLR
0ULLDR
0LLLDR
0LUDLLR
0RDDDURR
0RDDDDRR
0RDDDUUR
0DDDDRRR
0DDDDURLR
0UUDDDDDR
0DDDDUULR
0DDDDLURR
0RDURDDDR
```

```
0RDDDULRR
0URDDDDDR
0UDDDDDUR
0DURDDDUR
0RDURDDUR
0UDDDDDRR

0RDDDUULR
0RDUUDDDR
0DDDDLRRR
0RUUDDDDR
0DUDDDDRR

0DURDDDDR
0DDDDULRR
0LDDDDUUR
0DDDDRURR
0DUDDDDUR
0LLDDDDDRR
0UDDDDDLUR
0UUUUULLUR
0DDDDLLDRR
0ULLURRRRR
0UUUUURLLR
0RLLLRRRRR
0UUUULLURR
0LUUDDDDDR
0UULLRRRRR
0UUUULLRRR
0UDDDDDULR
0LLUUUUURR
0UUUULLRRR
0UUUUURLUR
0UUDDDDDLR
0URLURRRRR
0UDUDDDDDR
0UUUURLLRR
0UUUUULLRR
0DUDDDDLRR
0LDDDDUULR
0UUUDURLURR
0UUURLUDRRR
0UUUUDURLUR
0UUUUUDLLRR
0UUUUUDLLURR
0UDDDDDLUDR
0UUUURLLDRR
0UUUUUULLDRR
0UDURLURRRR
0DDDDDLLLDR
0UUUUUDULLR
0URLURLRRRR
0UUUUUDULLRR
0UDLLURRRRR
0LLUUUUDRRR
0UUUUUDLLRDR

((3,-1),(1,1))
```

```
unreachable
state,you done
goofed

((3,-1),(2,-1))
0LLLRD
0LLURD
0ULLRD
0LLUDRD
0LLLDRD
0DLLLRD
0RRRDDDD
0DDDDRRRD
0UURDDDDD
0DURRDDDD
0DUURDDDD
0URRDDDDD
0LLRRDDDDD
0ULRRDDDDD
0UUDDDDDRD
0DURDURDDD
0UDDDDDRRD
0UULRDDDDD
0UUUURLURRD
0UUUURLLRRD
0LLUUUUURRD
0UUDDDDDLRD
0UULLRRRRRD
0UUUUUULLRRD
0UUUUUDLLRRD

((3,-1),(2,0))
0UUR
0URR
0UDRR
0URDR
0UUDR
0LURR
0URLR
0LUUR
0ULRR
0RLLR
0UULR
0UDUR
0LLRR
0UUDLR
0DLLRR
0LLRLR
0UDLUR
0LLDRR
0DLLUR
0LUUDR
0UDUDR
0LLUDDR
0DUDLLR
0LLLDDR
0UDLUDR
0DLLRUR
0UDDLLR
```

```
0LUDLUR
0LUUDLR
0DLLLDR
0DDLLLR
0DLLRDR
0UDLLDR
0LUDLRUR
0DLLRDLR
0LUDLUDR
0LUDDLLR
0RDDDDDRR
0RDDDDUUR
0UUUUUURR
0DDDDDUUR
0DDDDDURR
0LUDLUDLR
0RDDDDURR
0DDDDDURLR
0UUUUURDRR
0UUUUDURRR
0UUUDURRRR
0RDDDDUULR
0UUURLRRRR
0UUUUDURRR
0DURDDDDUR
0RDURDDDDR
0UUDURRRRR
0RDDDDULRR
0UUUUUDRRR
0RDUUDDDDR
0UUUDRRRRR
0RUUDDDDDR
0UUDULRRRRR
0DLLUUUUURR
0UUUUUDLRRR
0UUDLURRRRR
0UUUUUDLURR
0UUUUUDUDRR
0UUUUUDULRR
0UUUUDLURRR
0UUUUDUDRRR
0UUUUUDLRDRR
0UUUUDUDLRRR

((3,-1),(2,1))
unreachable
state,you done
goofed

((3,-1),(3,-1))
0URRD
0UURD
0UUDRD
0ULRRD
```

```
0UDRRD
0LLRRD
0UULRD
0ULLRDD
0UUDLRD
0DLLRRD
0LUUDRD
0LLLRDD
0LLURDD
0DDLLLRD
0LLUDDRD
0UDLUDRD
0DUDLLRD
0LLLDDRD
0DLLRDLRD
0LUDLUDRD
0DURRDDDDD
0DUURDDDDD
0UUUUUDRRRD
0DURDURDDDD
0UUUUUDLRRRD

((3,-1),(3,0))
0RRR
0LRRR
0DURR
0DRRR
0RDRR
0RLRR
0DUUR
0DUDUR
0UDDUR
0DUULR
0UUDDR
0UDDRR
0LDUUR
0DRURR
0DURDR
0URDDR
0LRLRR
0DLRRR
0DLURR
0RUULR
0DUDRR
0RUUDR
0UDDRUR
0DLRDRR
0UDDLRR
0LUDDUR
0DDLLRR
0DLLDRR
0UUDDLR
0UDUDDR
0LUUDDR
0UDUDLRR
0UDDLUR
0LDUULR
0UDDULR
0DDLLUR
```

```
0LLDDRR
0DLRURR
0LLLDDDR
0UDDLUDR
0LUDDLUR
0DUDLRUR
0DDDLLLR
0LLUDDDR
0DLRDLRR
0DDLLRDR
0UDDLLDR
0DDLLRUR
0DDLLLDR
0UDDDLLR
0UDUDDLR
0DUDDLLR
0DLRDLRDR
0DLRDLRUR
0DDLLRDLR
0LUDDLRUR
0UDDLUDLR
0LUDDDLLR
0URLLLLURR
0DLRDLRDLR
0RDDDDDURR
0UURLLLLUR
0UULLLLLUR
0UULLLLLRR
0ULLLLLURR
0RDDDDDUUR
0UUDDURRRRR
0URLLLLLDRR
0UUUDDRRRRR
0UURDDRRRRR
0UULLLLLDRR
0UURLLLLLDR
0UUDDULRRRRR
0UUDDLURRRRR

((3,-1),(3,1))
unreachable
state,you done
goofed

((3,-1),(4,-1))
0RRRD
0URRDD
0DURRD
0DUURD
0UURDD
0DRRRD
0UUDDRD
0ULRRDD
0UULRDD
0UDDRRD
0DLRRRD
0LLRRDD
0DUDLRRD
```

```
0UUDDLRD
0DDLLRRD
0ULLRDDD
0LLLRDDD
0LLURDDD
0DDDLLLRD
0DUDDLLRD
0DLRDLRRD
0UDDLUDRD
0LLLDDDRD
0DDLLRDLRD
0UULLLLLRRD

((3,-1),(4,0))
0DDRRR
0DDURR
0RDURR
0RDUUR
0DDUUR
0RDDRR
0RDULRR
0RDURDR
0UDDDUR
0DURDDR
0DDULRR
0DDURLR
0URDDDR
0DUDDRR
0UUDDDR
0UUDDDR
0DURDUR
0DUDDUR
0RDUUDR
0RDUULR
0RDURLR
0DDUULR
0RUUDDR
0DDLRRR
0DDLURR
0DDRURR
0DDDLLUR
0DDLRURR
0LDDUULR
0LUUDDDR
0DUDDLRR
0UDDDDLR
0LLDDDRR
0UDUDDDR
0LUDDDUR
0UDDDRUR
0DUDDULR
0UUDDDLR
0DDLRDRR
0DDLLDRR
0UDDDLRR
0LLUDDDDR
```

Blank Registration's locker unlocker

Brute force when the top and right gates are known

0LUUDDDLR
0UDDDLLDUD
0UUDDDDLRU
((3,0),(1,1))
0DDDLRRDULU
0DLLUU
0LRRRLUUUUU
0UDDDLUDR
0DDDLLLDUD
0URRRRRLLU
0LLUU
0DUDDDLRRDU
0UDUDU
0UUUURRRUDU
0DDLRDLRR
0DDDLLRRUD
0DDDDLLRRU
0ULLU
0LLLRRUUUUU
0UUDRU
0LLRRDDDDDU
0LLLDDDDR
0DUDDDLRRU
0URLU
0UUUUULLRRU
0UDRRU
0UUUUURRUDU
0UDDDLLDR
((3,0),(0,0))
0ULLRDDDDU
0ULLRU
0LLUUUUURRU
0LURRU
0LUUUUURRRU
0LUDDDLUR
unreachable
0LUUDDDDRU
0LLUDU
0RRLLUUUUDU
0LLDUU
0UUUUULLRRDU
0DUDDLRUR
state,you done
0DDDLRRDLU
0LLURU
0UUUURLLRRU
0DULLU
0UUUURRDDLLU
0UDUDDDLR
goofed
0LUUDDDDLU
0UDLLU
0UUUUURLURU
0UDULU
0LLUUUUURRDU
0DDDLLRUR
0UDDDDLRRU
0DRLLU
0UUDDDDDLRU
0UUDLU
0DUDDDLLR
((3,0),(0,1))
0UDUDDDDRU
0LLLRU
0UUUURRDLLU
0LLRUU
((3,0),(3,-1))
0DDDLLRDR
0LLLU
0DDDDLRRLU
0ULLDU
0UUUUDURRLU
0DRRLU
0UUUD
0DDDLLLDR
0RRDDUU
0DDDLLRRDU
0LLLDU
0UUUUURRLLDU
0LUURU
0UUDUD
0UDDDDLLR
0RRRDDU
0UUUURRLLU
0DLLLU
0UUUUURLLDU
0LLRRU
0LUUUD
0ULLLLRRRR
0DDDUUU
0RRRRRLLLU
0DLLLRU
0URLURRRRRU
0URLDU
0URRUD
0LLLLURRRR
0RDDUUU
0DDDDLLLDU
0LUDLLU
0DUUUUULLLU
0LLLDDU
0UUDLUD
0LLLLUURRR
0RDDUURU
0RRLLLUUUU
0LUDLLRU
0UUUUURLLRU
0UDLLDU
0ULLUDD
0UULLLLURR
0RDDDRUU
0DDLRRDULU
0DDDDUUU
0UUUUURLURU
0DLLURU
0LLUUDD
0DDLRDLRDR
0LDDDUUU
0UDDDDLLDU
0RRRDDDU
0LUUDLU
0UDUDUD
0DDLRDLRUR
0DDDUURU
0DDDDLLURU
0RRDDDUU
((3,0),(2,-1))
0UDDLLU
0LLRRUD
0LUDDDDLLR
0URRDDDU
0LLUDDDDDRU
0RDDDUUU
0LLUUD
0DLRRLU
0UDRRUD
0LLLLUUURR
0RDURRDU
0UUURLURRLU
0RDDDDRRU
0URLUD
0DDLLLU
0UDDLLUD
0UUULLLLRR
0DURRDDU
0UUUUDURLLU
0URRDDDDU
0ULLUD
0ULLRDU
0DLLLDUD
0LLLLLRRRR
0DDDLUUU
0DDDLRDLRRU
0DURRDDDU
0UDLLUD
0DLLLDU
0DDLLLUD
0DDDLLRDLR
0DDRRRDU
0UUUURLLLRU
0UUDDDDDU
0DLLLUD
0DUDLLU
0UDLLDUD
0UUURLLLUR
0DDDRRRU
0DUDDDLLRDU
0DDDRRRDU
0LLLUDD
0LLUDDU
0LUUDLUD
0ULLLLDRRRR
0RDUURDU
0UUUURLLURU
0RRDDDDLU
0ULLDUD
0DLLRRU
0LLLUDDD
0DLLLLUUUR
0UUDDDDU
0LDDDDUUU
0DLLLRUD
0UDDLLRU
0DLLRRUD
0LLLLUDRRRR
0RDDDRRU
((3,0),(1,-1))
0RDDDDRUU
0LUDLLUD
0DUDLLRU
0DDLLLRUD
0UUUDLLLLRDR
0RDDURRU
0LLLUD
0DDDDUULU
0RUUUDDDD
0UDLUDLU
0LUDDLLUD
0UUDDULLLLLR
0DDDURRU
0RRDUUDD
0DDDDRRRU
0RRRUDDDD
0DDLLLRU
0LUDLUDLUD
0RRRDULU
0UUUDDDD
0DDDDLUUU
0UUUDDDDD
0DLLRDLU
0DUUUDDDDD
((3,-1),(4,1))
0RRDDDLU
0RUUUDDD
0DDDDURRU
0RRUDDDDD
0LLUDDRU
0RUUUDDDDD
unreachable
0DUURDDU
0RRRUDDD
0DUURDDDU
0RRUUDDDD
0LUUDLRU
0RRUUDDDDD
state,you done
0DUUDDDU
0RRRDUDD
0DUUDDDDU
0DUUUDDDD
0LUDDLLU
0RRRDUDDDDD
goofed
0DDDUULU
0RRRUDDD
0DDDDUURU
0LUUUDDDDDD
0DLLLRDU
0LUUUUURRRUD
0DDDLRRRU
0DUUUDDD
0RDDDUULU
0URRUDDDDD
0LUDLUDU
((3,0),(0,-1))
0DUDDDULU
0URRDUDDD
0RRDDDULU
0LRRRUDDDD
0DDDDDUUU
((3,0),(3,0))
0DUUUDD
0ULRRDDDU
0UUDUDDDD
0RDURRDDU
0URRDUDDDD
0RDDDDUUU
unreachable
0UUUDDD
0DDLRRRDU
0LUUUDDDD
0ULRRDDDDU
0UUUUURRLUD
0DLLRDLRU
state,you done
0RRDUUD
0DUDDDRRU
0LRRRUDDD
0UUDDDDDLU
0LLRRDUDDDD
0LUDLUDLU
goofed
0RUUUDD
0DDDDULLU
0DDDRRRUD
0URDDDDDRU
0LLRRUDDDDD
0LUDDLLRU
0RRRDUD
0UUDDDDRU
0RDUURDUD
0RRRLLUUUU
0RDURDURDUD
0RRDDDDUU
((3,0),(3,1))
0RRRUDD
0DURDDULU
0URRUDDDD
0UURRRRRLU
0UDUDUDDDDD
0RRDDDDULU
0DUUU
0RDUUUD
0URDDDDRU
0DDDLRRRUD
0LLDDDDDUU
0UUUUULLRRUD
0URRDDDDDU
0RRUU
0RRUUDD
0LDDDUURU
0LLRRDUDDD
0RRLLUUUUU
0DURRDDDDU
0RUUU
0DDRRRUD
0RDURDURU
0ULLUDDDDD
0UDUDDDDDU
((3,0),(2,0))
0RDDDDRRU
0RRRU
0LRRRUDD
0UDUDDDDU
0UDUDUDDDD
0DDDDDULLU
unreachable
0DDDDDURRU
0DLUUU
0URRDUDD
0UDDDDULU
0DDLRRRDUD
0UUUDDDDRU
state,you done
0RRDDDDDLU
0RUULU
0URRUDDD
0DDDDLLUU
0LLRRUDDDD
0DURDDDULU
goofed
0DDDDRRUU
0URRDU
0RRRUDDD
0LLDDDDUU
0UDDDDRRUD
0RDURDURDU
0DDDDDUURU
0DUUDU
0LRRRUDD
0LLDDDDUU
0UDDDDRRUD
0DUDDDDULU
((3,0),(2,1))
0RDDDDUULU
0RRULU
0LUDDDDD
0UDDDDRRU
0UUUUURRLUD
0RRRRRLLUU
0UUU
0DDDDDUULU
0LRRRU
0LLRRUDDD
0RDURDULU
0UUUUURLLUD
0LLRRDDDDU
0LUUU
0UURLLLLLU
0LRUUU
0ULLUDDDD
0UDDDRRDU
0UUUUUURRLU
0UULU
0DUURDDDDU
0DUULU
0UDUDUDDD
0UUDDDLU
((3,0),(1,0))
0UDDDDDRRU
0UURU
0UUUUURRRU
0RRDLU
0DLLRRDDD
0DDDDRRLU
unreachable
0DUDDDDRRU
0UUDU
0URRLLLLLU
0UUDDU
0DDDDDRRLU
0UDDDDDLLU
state,you done
0UDDDDRRDU
0URRU
0LUDLUDLRU
0DURRU
0UDDDRRUD
0DUDDLRRDU
goofed
0DDDDLRRRU
0RRLU
0UUUUURRLDU
0DUURU
0DDDDLLLUD
0UUUUURLLU
0LDDDDUURU
0LUUDU
0LLRRRUUUUU
0LDUUU

Blank Registration's locker unlocker

Brute force when the top and right gates are known

0LRRUU
0DRRRU
0LLDDUU
0DLRRRU
0ULRRDU
0UUDDLU
0DDULLU
0DDLLUU
0DDRRLU
0UDRRDU
0UUDDRU
0DUDULU
0UDDRRU
0LLRRDU
0UUDDLU
0UDDRLRU
0DDLLLDU
0DDLLURU
0DDLRRLU
0ULLRDDU
0UDDLLDU
0DLRRDLU
0LUUDDRU
0UDDDLLU
0LLLDDDU
0UDUDDRU
0DLLRRDU
0LUUDDLU
0DUDDLLU
0UDDRRDU
0DUDLLRDU
0DDDLLLRU
0DUDDLLRU
0LUDDDLLU
0DDLLRDLU
0DDLLLRDU
0LUDDLUDU
0LLUDDDRU
0UDDLUDLU
0UDDDLLRU
0RRLLLLLUU
0RRDDDDDUU
0DDLLRDLRU
0RRRLLLLLU
0DLRDLRDLU
0LUDDDLLRU
0RDDDDDUUU
0UUURLLLLU
0UURLLLLUDU
0DUURDDDDDU
0DURRDDDDDU
0UURRRRRDDLU

((3,0),(4,-1))
0RUUUD
0DUUUD
0RRUUD
0UUUDD
0RRRUD
0URRUDD
0DRRRUD
0URRDUD
0UUDUDD
0LRRRUD
0LUUUDD
0ULLUDDD
0DLRRRUD
0LLRRDUD
0UUDDLUD
0UDDRRUD
0UDUDUDD
0LLRRUDD
0UDDLLDUD
0LLLUDDDD
0DDLLLDUD
0DDLLRRUD
0DDDLLLUD
0UDDDLLUD
0DDDLLLRUD

((3,0),(4,0))
unreachable
state,you done
goofed

((3,0),(4,1))
0RRRDU
0RRDUU
0DDUUU
0RDUUU
0RRDDLU
0URRDDU
0LDDUUU
0RDUURU
0RDDRUU
0DUUDDU
0RDUULU
0DDUULU
0DDLUUU
0RDURRU
0RRDULU
0UUDDDU
0DRRRDU

((3,1),(0,-1))
0DUURDU
0DDUURU
0DURRDU
0DDRRRU
0DUDDULU
0RDUUULD
0RDUURLU
0DUUDDU
0DDDDDU
0UDDDDU
0DDDDDU
0UDDDDU
0DDDDDU
0UDD

Blank Registration's locker unlocker

Brute force when the top and right gates are known

0RUUUDDDDL
0LRRRLDDDD
0DUURDDDDL
0UUUDDDDDL
0UURDDDDDL
0RRDDDDLL
0URRDDDDLD
0DURRDDDDL
0UUUDDDDLD
0UUUUURRLLD
0UUDUDDDDLD
0LLRRLDDDDD
0DDDDLRRRLD
0UUUUURRDLL
0UULRDDDDLD
0UDDDDDRRDL
0UUUUUDRRDLL
0UUUUUDRRLLD

((3,1),(2,0))
0RRLL
0UURL
0URRL
0LLRRL
0UUDRL
0UDURL
0RLLRL
0DRRLL
0DLLRRL
0LUUDRL
0UDDRLL
0UUDLRL
0DDRLLL
0LUDDRLL
0UDDLLRL
0DDLLLRL
0LUUDLRL
0LUDDLLRL
0DLLRDLRL
0DDDDDUURL
0LUDLUDLRL
0DDDDDURRL
0UUUUUDURRL
0UUDURRRRRL
0UUUUUDLRRRL

((3,1),(2,1))
0UUUL
0URRUL
0DUULL
0RRULL
0UUDUL
0LUUUL
0UDDULL
0DRRULL
0DDULLL
0UUDLUL
0DDLULLL

0UDDLULL
0LUDDULL
0LUUDLUL
0DLLRRUL
0LUDDLULL
0DLLLRDUL
0DDDDDUUUL
0LUDLUDLUL
0URRDDDDDUL
0DURRDDDDUL
0UUUUURRRUL
0DUURDDDDUL
0LLRRRUUUUUL

((3,1),(3,-1))
0URRDL
0RRDLL
0UUUDL
0RRLLD
0URRLD
0UURLD
0UURDL
0LLRRLD
0UUDDLRL
0UUDLLRL
0DLLRRDL
0LUUDDRL
0LLRRDDDDL
0UUDDDDRRL
0DLRDLRRL
0UUDDDRRL
0LUUDDDRL
0DLRDLRDLRL

((3,1),(3,1))
0RRRUL
0RUUUL
0DUUUL
0RRUUL
0URRDUL
0UUDDUL
0DRRRUL
0LDUUUL
0DUUDUL
0LRRRUL
0DDUULL
0DDRRULL
0DLRRRUL
0UDDRRUL
0DDDLLLL
0DLLRRLD
0UDDDDLL
0LUUDDUL
0UUDDDULL
0DDDLULLL
0UDDLUDLL

0LUDLUDLLD
0LUDDLUDLL
0RRRLDDDDD

((3,1),(3,0))
0RRRL
0DRRRL
0LRRRL
0DUURL
0RLRRL
0LDUURL
0UDDURL
0UDDRRL
0DDRRLL
0DLRRRL
0UUDDRL
0UDDLRRL
0UDUDDRL
0DDDRLLL
0UDDDRLL
0UUDDLRL
0DDLLRRL
0LUUDDRL
0RLLLDDD
0URRDUL
0UUDDUL
0DRRRUL
0LDUUUL
0DUUDUL
0LRRRUL
0DDUULL
0DDRRULL
0DLRRRUL
0UDDRRUL
0DUDDULL
0UDDDULL
0LUUDDUL
0UUDDLUL
0DDDLULLL
0DDDLULLL
0LUDDDULL

((3,1),(4,-1))
0RRRLD
0RRRDL
0UUUDLD
0RRDDLL
0DRRRDL
0URRDDL
0UUUDDL
0UURDLD
0RUUULD
0LRRRLD
0DURRDL
0RUUUDL
0DRRRLD
0URRDLD
0DUURDL
0UURDDL
0RRLLDD
0DUURLD
0UDDRRDL
0UULRDLD
0LUUULDD
0RLLLDDD
0URDDDLL
0RDURLDL
0DLRRRDL
0UUDDDLL
0UULRDDL
0RDDDLLL
0DLRRRLD
0UUDUDDL
0LUUUDDL
0DDRRLLD
0LUUUDLD
0UUDDLLD
0URDDLLD
0DDRRDLL
0UUDUDLD
0LLRRLDD
0DDLLRRLD
0UDDDLLLD
0DUDDLLLD
0DUDLRRDL
0UDUDDDLL
0DDDLLLLD
0DUDDDLLL
0DUDDLLRDL
0LUDDDLLLD
0DLRDLRRDL

((3,1),(4,0))
0DDRRRL
0RDURRL
0DDUURL
0RRUURL
0DRRRUL
0RRRULL
0RRRRLL
0LUUUULL
0LLLLLDD
0LLLLDDD
0LUUDLLD
0DLLRRDL
0DDLLLLLD
0DUDDDLLL
0DDDLLLLD
0DDDLLLLD
0DDDLLLLD

Blank Registration's locker unlocker

Brute force when the top and right gates are known

0LLRRRDDD
0UUDDDRRD
0LLLRRDDDD
0UULLRDDDD
0LLURRDDDD
0ULLRRDDDD
0UUDDDLRRD

((4,-1),(1,0))
0LLLLR
0LLLUR
0ULLLR
0LLLLDR
0DLLLLR
0ULLLDR
0LLLUDR
0RDDUURR
0DDDRRRR
0RDDUUUR
0RDDURRR
0DDDUURR
0DDDURRR
0LUDLLLR
0DDDUUUR
0RDDDRRR
0DURDDURR
0RDUUDDRR
0LDDDUUUR
0UUUDDDDR
0UUDDDDRR
0UUDDDDUR
0RDDUUULR
0RDDUULRR
0UDDDDURR
0UURDDDDR
0RDURDDRR
0DURDDDRR
0RDDUULRR
0DDDLRRRR
0DDDLURRR
0RDURDURR
0URDDDDRR
0UDDDDRRR
0RDUURDUR
0DUUDDDUR
0DDDULRRR
0RUUUDDDR
0DUDDDRRR
0DDDRURRR
0UDDDDRURR
0UDDDDULRR
0UDDDDLURR
0UUDUDDDDR
0UDDDDURLR
0DDDDLLRRR
0RDURDURDR

0DDDLRDRRR
0UUDDDDLUR
0LDDDUUULR
0DDDDLLDRRR
0DDDDLLURR
0UUDDDDLRR
0RDURDURLR
0DDDDLLUUR
0UUDDDDRUR
0UUDDDDULR
0DUDDDULRR
0UDUDDDDRR
0UDDDDLRRR
0LLDDDDRRR
0DUDDDLRRR
0UDDDDLLDRR
0UDUDDDDLRR
0DUDDDDLLRR
0UUDDDDLRDR
0DDDDLLLDRR
0LLUDDDDDRR
0UUUUURLLUR
0UDDDDDULLR
0UUDUDDDDLR
0DUDDDDLRURR

((4,-1),(1,1))
unreachable
state,you done
goofed

((4,-1),(2,-1))
0LLLURD
0ULLLRD
0LLLLRD
0RRRRDDD
0LLLLDRD
0LLLUDRD
0DLLLLRD
0RDURRRDD
0UUURDDDD
0DURRRDDD
0DDDRRRRD
0RDUUURDD
0UUDDDDRRD
0DDDLRRRRD
0UULRRDDDD
0UUULRDDDD
0LLRRRDDDD
0DURDURRDD
0ULRRRDDDD
0UDDDDRRRD
0RDURDURRD
0ULLRRDDDDD
0LLURRDDDDD
0UUDDDDLRRD
0UULLRDDDDD

((4,-1),(2,0))

0UURLLR
0URLLR
0ULLUR
0RLLLR
0ULLRR
0URLUR
0LLURR
0LLLRR
0LLUUR
0DLLLRR
0DLLLUR
0UDLLUR
0UUDLLR
0UULLDR
0URLUDR
0ULLDRR
0LLLRLR
0LLUUDR
0URLLDR
0LLLDRR
0LLUDRR
0LLLUDDR
0DLLLRDR
0UDLLLDR
0LUUDLLR
0UDDLLLR
0LUDLLUR
0UDLLUDR
0DLLLRUR
0LLLLDDR
0DLLLLDR
0DLLLLLR
0DUDLLLR
0DLLLRDLR
0LUDLLUDR
0DDDDURRR
0RDDDDRRR
0DDDDUUUR
0LUDLLRUR
0LUDDLLLR
0DDDDUURR
0RDDDURRR
0UDLUDLLR
0UDDDDDURR
0RDDDULRRR
0LUDLUDLLR
0DUUDDDDUR
0DURDDDDRR
0DDDDULRRR
0UDDDDDRRR
0DUDDDDURR
0UUDDDDDRR
0UUUDDDDDR
0RUUUDDDDR
0RDURDDURR
0URDDDDDRR
0DDDDLURRR
0LDDDDUUUR
0UURDDDDDR

0UUDDDDDUR
0UDDDDDULRR
0UDDDDDURLR
0LDDDDUUULR
0UDDDDDLURR
0UUUUURLLRR
0LLDDDDDRRR
0UUDDDDDLUR
0UUDDDDDULR
0UUUUULLURR
0UDUDDDDDRR
0DUDDDDULRR
0UUUUURLURR
0UUUUUDULLRR
0DDDDDLLLDRR
0UUUUDURLURR

((4,-1),(2,1))
unreachable
state,you done
goofed

((4,-1),(3,-1))
0LLURRD
0LLLRRD
0URLLRD
0UULLRD
0ULLRRD
0LLUURD
0URLURD
0LLUUDRD
0DLLLRRD
0LLLURDD
0URLUDRD
0LLLLRDD
0UUDLLRD
0ULLLRDD
0DDLLLLRD
0LLLLDDRD
0LLLUDDRD
0DUDLLLRD
0UDLLUDRD
0DURRRDDDD
0LUDLLUDRD
0UUURDDDDD
0UUULRDDDDD
0UDDDDDRRRD
0UUULRRDDDDD

((4,-1),(3,0))
0UUUR
0UURR
0URRR
0LLRRR
0UUDRR
0UDURR
0RLLRR
0UUULR
0UDRRR

0LUUUR
0UUDUR
0URLRR
0LURRR
0UULRR
0UURDR
0ULRRR
0URDRR
0UUUDR
0UURLR
0LUURR
0UUDLUR
0DLLRRR
0UUDULR
0UUUDLR
0LLRLRR
0UUDLRR
0LUUUDR
0LLDRRR
0UDUDRR
0DLLURR
0UDLURR
0DLLUUR
0UUDUDR
0UUDLUDR
0LLLDDRR
0UDDULLR
0UUDUDLR
0UDDLLUR
0DUDLLRR
0DLLRDRR
0LUUUDLR
0DDDLLLDR
0LLLUDDDR
0LLLLDDDR
0UUDLLLDR
0DDLLLRUR
0UDLLUDLR
0UDDLLLDR
0UDUDDLLR
0LUUDLUDR
0UDDLLUDR
0UDDLLRDR
0UUUDLLDR
0LLLUDDDR
0LLLLDDDR
0UUDLLLDR
0DDLLLRUR
0UDLLUDLR
0UDDLLLDR
0UDUDDLLR
0LUUDLUDR
0UDDLLUDR
0UDDLLRDR
0UUUDLLDR
0LLLUDDDR
0LLLLDDDR
0UUDLLLDR
0DDLLLRUR
0UDLLUDLR
0UDDLLLDR
0UDUDDLLR
0LUUDLUDR
0UDDLLUDR
0UDDLLRDR
0UUUDLLDR
0LLLUDDDR
0LLLLDDDR
0UUDLLLDR
0DDLLLRUR
0UDLLUDLR
0UDDLLLDR
0UDUDDLLR
0LUUDLUDR
0UDDLLUDR
0UDDLLRDR
0UUUDLLDR
0LLLUDDDR
0LLLLDDDR
0UUDLLLDR
0DDLLLRUR
0UDLLUDLR
0UDDLLLDR
0UDUDDLLR
0LUUDLUDR
0UDDLLUDR
0UDDLLRDR
0UUUDLLDR
0LLLUDDDR
0LLLLDDDR
0UUDLLLDR
0DDLLLRUR
0UDLLUDLR
0UDDLLLDR
0UDUDDLLR
0LUUDLUDR
0UDDLLUDR
0UDDLLRDR
0UUUDLLDR
0LLLUDDDR
0LLLLDDDR
0UUDLLLDR
0DDLLLRUR
0UDLLUDLR
0UDDLLLDR
0UDUDDLLR
0LUUDLUDR
0UDDLLUDR
0UDDLLRDR
0UUUDLLDR
0LLLUDDDR
0LLLLDDDR
0UUDLLLDR
0DDLLLRUR
0UDLLUDLR
0UDDLLLDR
0UDUDDLLR
0LUUDLUDR
0UDDLLUDR
0UDDLLRDR
0UUUDLLDR
0LLLUDDDR
0LLLLDDDR
0UUDLLLDR
0DDLLLRUR
0UDLLUDLR
0UDDLLLDR
0UDUDDLLR
0LUUDLUDR
0UDDLLUDR
0UDDLLRDR
0UUUDLLDR
0LLLUDDDR
0LLLLDDDR
0UUDLLLDR
0DDLLLRUR
0UDLLUDLR
0UDDLLLDR
0UDUDDLLR
0LUUDLUDR
0UDDLLUDR
0UDDLLRDR
0UUUDLLDR
0LLLUDDDR
0LLLLDDDR
0UUDLLLDR
0DDLLLRUR
0UDLLUDLR

0LUDDLLUDR
0UDDLUDLLR
0DDDDDUUUR
0DDDDDUURR
0LUDDLLRUR
0LUDLUDLUR
0UUUUUDLURRR

((4,-1),(3,1))
unreachable
state,you done
goofed

((4,-1),(4,-1))
0UURRD
0URRRD
0UUURD
0UUDRRD
0UUUDRD
0ULRRRD
0UDRRRD
0UULRRD
0LLRRRD
0UUULRD
0LLUURDD
0ULLRRDD
0DLLRRRD
0UUDLRRD
0LLLRRDD
0LUUUDRD
0UULLRDD
0LLURRDD
0UUUDLRD
0ULLLRDDD
0LLLLRDDD
0LLLURDDD
0UUDLUDRD
0UUDDLLRD
0UDDLLUDRD

((4,-1),(4,0))
0RRRR
0DUUUR
0RDRRR
0DUURR
0LRRRR
0DRRRR
0DURRR
0RLRRR
0DUUDUR
0UDDURR
0LDUUUR
0UDDRRR
0LRLRRR
0DUUULRR
0DUDURR
0UUDDUR

0UURDDR
0UUUDDR
0DRURRR
0DUURDR
0URDDRR
0DURDRR
0DUUULR
0RUUUDR
0RUUULR
0UUDDRR
0DLRRRR
0DUDRRR
0DLRDRRR
0UUDDLUR
0DDLLURR
0UUDDLRR
0UDDULRR
0UDDLURR
0LLDDRRR
0DLLDRRR
0LUUDDUR
0DLRURRR
0DDLLUUR
0UUDUDDR
0UUDDRUR
0UDDURLR
0UDUDDRR
0DUDLRRR
0LDUUULR
0UDDLRRR
0UDDRURR
0UUDDULR
0LUUUDDR
0DUDDLLRR
0DLRDLRRR
0UDDDLLRR
0UDDLLDRR
0LLLDDDRR
0UUDDLDRR
0UUDDLRDR
0LLLUDDDR
0DDDLLLUR
0UDDDULLR
0UDDDLLUR
0UUDUDDLR
0UDUDDLRR
0DUDLRURR
0DDDLLLRR
0DUDDLLUR
0DDLLLDRR
0DUDDLLRUR
0DDDLLLDR
0DLRDLRDRR
0DUDDDLLLR
0UDUDDDLLR
0UULLLLLURR

((4,-1),(4,1))

Blank Registration's locker unlocker

Brute force when the top and right gates are known

unreachable state,you done goofed

((4,0),(0,-1))
0RRRUUD
0DUUUUD
0RRRRUD
0RUUUUD
0RRUUUD
0UUUUDD
0UURRDUD
0UURRUDD
0URRRDUD
0RRRRUD
0UUUUDUD
0LUUUUDD
0DLLLLUDDD
0ULLRRUDDDD
0UDDDLLLDUD

((4,0),(0,0))
unreachable state,you done goofed

((4,0),(0,1))
0LLLLU
0RRDUUU
0DDUUUU
0RRRDUU
0RRRRDU
0RDUUUU
0DRRRRDU
0DDLUUUU
0DURRRDU
0RDDRUUU
0RRRDULU
0DUUUDDU
0DDUUURU
0URRRDDU
0DDURRRU
0RRDUULU
0LDDUUUU
0DDRRRRU
0UURRDDU

0DUUURDU
0RRRDDLU
0RDUUULU
0RDDRRUU
0RDDRRRU
0RDURRRU
0RDUUURU
0RRDDLUU
0RDUURRU
0DUURRDU
0UUDDRRDU
0UULRRDDU
0ULRRRDDU
0DURRDDLU
0DDLRRRRU
0URRRDDLU
0UDDDRRRU
0DLRRRRDU
0UUUDDDRU
0UDDRRRDU
0LLRRDDUU
0URDDDRRU
0LDDUUURU
0DUDDRRRU
0DUURDULU
0DDDUULLU
0UURDDDRU
0UUDDDRRU
0UUDDDULU
0DDDLLUUU
0DURRDULU
0RRDDDLLU
0DDDRRRLU
0UDDDDULLU
0DDDDULLLU
0DDDDRRLLU
0UDDDDRRLU
0UUDUDDDRU
0UULLRDDDU
0UDDDLRRRU
0LLURRDDDU
0UUUDDDRLU
0UUDDDDULU
0DDDDRRLLU
0UDDDDRRLU
0UUDUDDDRU
0UULLRDDDU
0UDDDLRRRU
0DUDLRRRDU
0UUDDDDLLU
0DDDDLLLLUU
0DDDDLLRRLU
0DDDDLLRRLU
0UDDDDLLRRU
0DDDDLLLLRU
0UDDDDLLRRU
0DDDDLLRRLU
0UDDDDLLRRU
0UUDUDDDRU
0UULLRDDDU
0UDDDLRRRU
0LLURRDDDU
0UUUDDDRLU
0UUDDDULU
0DDDLLUUU
0DURRDULU
0RRDDDLLU
0DDDRRRLU
0UDDDDULLU
0DDDDULLLU
0DDDDRRLLU
0UDDDDRRL

Blank Registration's locker unlocker

Brute force when the top and right gates are known


```
0DLLRRRU
0DDDLLLLU
0LUUDLUDU
0LUUUDLRU
0DDLLLURU
0UDDLLRRU
0UDDLLLDU
0LLUUDDRU
0LLLUDDDU
0LLLLDDDU
0DDLLLLDU
0UUDDLLRU
0UDDDLLLU
0UDDULLRU
0UUDLUDLU
0ULLLRDDU
0DUDDLLLU
0UDDLUDLLU
0DDDDDUUUU
0LLLUDDDRU
0LUUDDLLRU
0LUDDLLUDU
0UDDDLLLRU
0DUDDLLLRU
0LUDDDLLLU
0LUDLUDLUDU

((4,0),(4,-1))
0UUUUD
0UURRUD
0LUUUUD
0URRRUD
0UUUDUD
0UUDUDUD
0UUDRRUD
0LLRRUUD
0LURRRUD
0UUUDLUD
0LLRRRUD
0UULLUDD
0UDRRRUD
0LLUUUDD
0LUUUDLUD
0UUDLLDUD
0ULLRRUDD
0ULLLUDDD
0DLLRRRUD
0LLLUUDDD
0DULLLUDD
0UUDDLLUD
0DDDLLLLUD
0UDDLLLDUD
0UDDDLLLUD

((4,0),(4,0))
unreachable
state,you done
goofed
((4,1))
0RRRUU
0RRUUU
0RUUUU
0DUUUU
0RRRRU
0RRDLUU
0DRRRRU
0DUUULU
0DUUURU
0LRRRUU
0RUUULU
0LDUUUU
0DUURRU
0UUUDDU
0LRRUUU
0DURRRU
0LRUUUU
0RRRDLU
0LRRRRU
0URRRDU
0RRUULU
0RRRULU
0DUUUDU
0UURRDU
0DLUUUU
0ULRRRDU
0UULRRDU
0UUDRRDU
0LUUUDDU
0DDULLLU
0UDRRRDU
0UUDDRRU
0LLLDDUU
0UUUDDRU
0DDRRRLU
0UUDDRRU
0DDLLUUU
0UDDRRRU
0DURRDLU
0ULLRRDDU
0UULLRDDU
0UUUDDDRU
0DLRRRDLU
0LLURRDDU
0DDDRRLLU
0DUDLRRRU
0DDDLLLUU
0LLLDDDUU
0UDDDULLU
0DLLRRRDU
0UUDDDLLU
0UDUDDDRU
0DDLLLDUU
0UUDDLRRU
0UDDDULLRU
0DDDLLLLDU
0DDDLLRRLU
0DUDDDLLLU
0DDDLLLDDU
0DDDLLLURU
0UDDDLLRRU

((4,1),(0,-1))
0RRRRDL
0RRRRLD
0UURRDLD
0UURRDDL
0UUUUDDL
0DRRRRLD
0LRRRRLD
0UUURDLD
0DUUURDL
0RUUUULD
0UUURDDL
0RUUUUDL
0DURRRDL
0UUUUDLD
0DUURRLD
0URRRDDL
0DUUURLD
0DUURRDL
0RRRLLDD
0URRRDLD
0RRRDDLL
0DRRRRDL
0UUDDRRLD
0URRDDLLD
0LUUUUDLD
0LUUUUDDL
0UDDRRRDL
0UURRDLLD
0RDURRLDL
0DDRRRDLL
0LUUUULDD
0UUUDUDDL
0UUUDUDLD
0DLRRRRDL
0RDUURLDL
0DLRRRRLD
0UULRRDLD
0UUDDRRDL
0UUULRDLD
0UULRRDDL

0RRLLLDDD
0UUULRDDL
0DDRRRLLD
0URRDDDLL
0UULLRDDDL
0RLLLLDDDD
0UDDDRRDLL
0URDDDLLLD
0UUDDDDLLL
0UUDDLRRLD

((4,1),(0,0))
0LLLLL
0RDUUURL
0RDUURRL
0DDURRRL
0DDUUURL
0DDUURRL
0DDRRRRL
0RDURRRL
0DUURDURL
0UUDDDURL
0UDDDURRL
0LDDUUURL
0DUUDDURL
0DUDDURRL
0DURDURRL
0UDDDRRRL
0DDDRRRLL
0DUDDRRRL
0UDDDDRRLL
0DDDDRRLLL
0UDDDLRRRL
0UDUDDDRRL
0UUUDDDRRL
0UUUDDDDRLL

((4,1),(0,1))
0ULLLL
0LULLLL
0RDUUUUL
0RRRRDUL
0RRRDUUL
0DDUUUUL
0RRDUUUL
0DUUUDDUL
0URRRDDUL
0LDDUUUUL
0UUUDDDUL
0RRRDDUUL
0DUUUDDUL
0URRRDDUL
0DDRRRRUL
0UUDDDRRUL
0DUDDDRRUL
0UDDDDRRUL
0RRRDDDUL
0UUDDDDUL
0DDDRRRUL
0UDDDDDUL
0DDDDDRUL
0UDDDDDLL
0UUDDLRRLD

((4,1),(1,-1))
0ULLLLD
0ULDLLL
0LLLLLD
0DLLLLL
0UDLLLL
0RRRRLDD
0LUDLLLL
0RRRRDLD
0RRRRDDL
0UUURDDLD
0UUUUDDDL
0RDUUURDL
0URRRDDLD
0UUUUDDLD
0RRRLLDDD
0RDUURRLD
0RDUUUULD
0LRRRRLDD
0RDURRRLD
0DDRRRRDL
0RDUURRDL
0DURRRDDL
0RDUURRLD
0RRRDUUDL
0RDUUUUDL
0RDUURRDDL
0UUUDDDDL
0RRRDUUDL
0RDUUUUDL
0UURRDDDL
0UUDDDDRL
0UDUDDDRL
0UUDDDLRL
0UUUDDDDL

((4,1),(2,-1))
0RDLLLL
0UULLLD
0UURDLL
0RLLRDL
0UUDDDL
0RRRRDDL
0RRRRLDD
0RRRRDLD
0LUDDLLLL
0DLLLLRDL
0LUDLLLLD
0DURRRDDL
0UDUDDDRL
0UDDDDRRL
0LDDDUUURL
0DUDDDURRL
0UDDDDRRRL
0DDDDRRRLL
0DUDDURRL
0UDDDDRRRL
0DUDDDRRRL
0RDURDURRL
0UDDDDDRRLL
0UDUDDDDRRL
0UDDDDLRRRL
0UUDDDDLRRL
0UUDUDDDDRL

((4,1),(1,1))
0UULLL
0LUULLL
0UDULLL
0DULLLL
0URLULL
0UDLULLL
0DLULLLL
0RRRDDUUL
0RDDUUUUL
0RRRRDDUL
0DDDUUUUL
0LUDLULLL
0DDDRRRRUL
0DURRRDDUL
0URRRDDDUL
0LDDDUUUUL
0RDUURRDUL
0RRRDDDULL
0UUUDDDDUL
0RRDDDDULLL
0DUUDDDDULL
0UDDDDRRRUL
0URRDDDDULL
0UUDDDDRRUL
0UDDDDRRRULL

((4,1),(2,0))
0URRLL
0RRLLL
0UURLL
0LLLRRL
0UDURLL
0URLURL
0DRRLLL
0RLLLRL
0UUDRLL
0UUDLLRL
0DLLLRRL
0LUUDRLL
```

Blank Registration's locker unlocker

Brute force when the top and right gates are known

0DDRLLLL
0UDDRLLL
0DDLLLLRL
0UDDLLLRL
0LUUDLLRL
0LUDDRLLL
0DDDDURRRL
0RDDDURRRL
0DLLLRDLRL
0LUDDLLLRL
0UDDDDDRRRL
0LUDLUDLLRL
0UUUUUDURRLL

((4,1),(2,1))
0UUULL
0LUUULL
0URRULL
0URRLUL
0RRULLL
0DUULLL
0UUDULL
0UURLUL
0DDULLLL
0DUDULLL
0UDDULLL
0UUDLULL
0DRRULLL
0DLLLRRUL
0LUUDLULL
0LUDDULLL
0DDLULLLL
0UDDLULLL
0DDDDUUUUL
0LUDDLULLL
0DLLLLRDUL
0UUUDDDDDUL
0UUDDDDDRRUL
0UUUUURRRULL
0UDDDDDRRRUL

((4,1),(3,-1))
0UUUDLL
0UURLLD
0URRLDL
0UUULDL
0UURDLL
0UURLDL
0RRLLLD
0UUULLD
0RRDLLL
0URRLLD
0URRDLL
0UULLRDL
0UUDLLLD
0LUUUDUL
0UDRRDLL
0UUDRLLD
0UUDULLD
0UDDRRLL
0UUDLLRRL
0DDDRLLLL
0UUDUDRLL
0LUUUDLL
0UDRRDLL
0LLLRRLD
0UUDUDLL

0LUUULLD
0RDDLLLL
0URDDLLL
0URDLLLD
0RLLLLDD
0DRRDLLL
0UUDDLLL
0URLURLD
0UUDULLD
0UDURLDL
0UDURLLD
0DRRLLLD
0LUUDDLLL
0DUDLLLLD
0DUDLLLLD
0DLLLRRLD
0UDUDDLLL
0DDLLLLLD
0UUDLUDLL
0LUUDLLLD
0UDDLLLLD
0UDDDLLLL
0LUUULLDD
0LUDDLLLLD
0DUDLLLRDL
0LUUDLUDLL
0DLLLLRDLD
0UDDLUDLLL
0RDURRRDDLD
0RUUUUDDDLD
0UUURDDDDDL
0UUURDDDDLD
0RRRLLDDDDD

((4,1),(3,0))
0UUURL
0RRRLL
0UURRL
0URRRL
0UDURRL
0LLRRRL
0DRRRLL
0UUDURL
0UUUDRL
0UUDRRL
0RLLRRL
0DDRRLLL
0UUDLRRL
0UUDRLL
0UUDDRLL
0UUUDLRL
0UUDUDRL
0UDDRRLL
0UDDDLRRL
0DDDLLRRL
0UUDDDRRL
0LUUUDLL
0UUDDLRRL
0UUUDLLRL
0UUDDDRLL
0UUDDDLRL
0UUUDDLRL
0UUDUDLRL
0UUUDDRRL
0UUDDDLRL
0UUUDDLRL
0UUDUDDRL
0UUDDDLRL
0UUDUDLRL
0UUUDDL